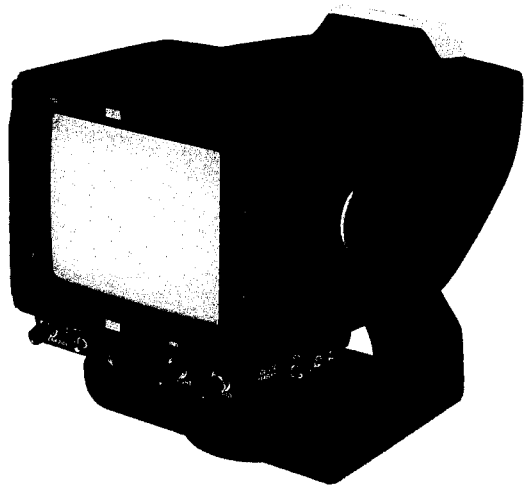
SONY

ELECTRONIC VIEWFINDER

BVF-55
BVF-55CE



OPERATION AND MAINTENANCE MANUAL

1st Edition (Revised 2)

Serial No. 10001 and Higher (UC)

Serial No. 30001 and Higher (J)

Serial No. 40001 and Higher (EK)

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important—To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.
"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC Rules."
— or —
"This equipment complies with the requirements in Part 15 of FCC Rules for a Class A Computing Device."
— or equivalent.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC Rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

Bescheinigung des Herstellers
Hiermit wird bescheinigt, daß der elektronische Sucher BVF-55CE in Übereinstimmung mit den Bestimmungen der Amtsblattverfügung Nr. 1046/1984 funkentstört ist.
Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.
Sony Corporation

Hinweis
Gemäß dem Amtsblatt des Bundesministers für das Post- und Fernmeldewesen Nr. 163/1984 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieses Amtsblattes genügen muß.

SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

X-RAY RADIATION WARNING

Be sure that parts replacement in the high voltage block and adjustments made to the high voltage circuits are carried out precisely in accordance with the procedures given in this manual.

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第 1 章　取り扱い操作

1-1. 概要

BVF-55は、ベータカムカメラとカメラアダプターCA-50/55/57のセットに取り付けて使用する5インチ白黒ビューファインダーです。
主な特長を以下に示します。

主な特長

省エネルギー設計

入力電圧の許容範囲が広く(10.5～17V)、低消費電力(10W)です。

高解像度

高性能ブラウン管を採用し、水平解像度650本以上という高解像度を実現しています。

両エッジピーキング回路採用

画像の両エッジで映像信号の補正を行なうので、シャープな画像が得られ、フォーカス合わせが容易になります。

センターマーカーおよびセーフティゾーン表示

画面の中心を示すセンターマーカーと画面の有効領域(90%)を示すセーフティゾーンを表示できます。

大型アップタリーランプ

点灯時、白色から赤色に変わることによって、認識性を高めた大型アップタリーランプを装備しています。
ナンバープレートが取り付け可能で、複数カメラでのオペレーションに対応します。
アップタリーランプの明るさは被写体に影響を与えないように調整することもできます。

2系統のタリーランプ

レッドタリー、グリーンタリー信号が入力されると、それぞれに対応したランプが点灯します。

優れた操作性

パンニングは左右方向にそれぞれ90度、チルティングは上下にそれぞれ40度の範囲で調整できます。
本体は約1.9kgと軽量で、堅牢なアルミダイキャストボディを採用しており、重心移動もないため、操作性にすぐれています。

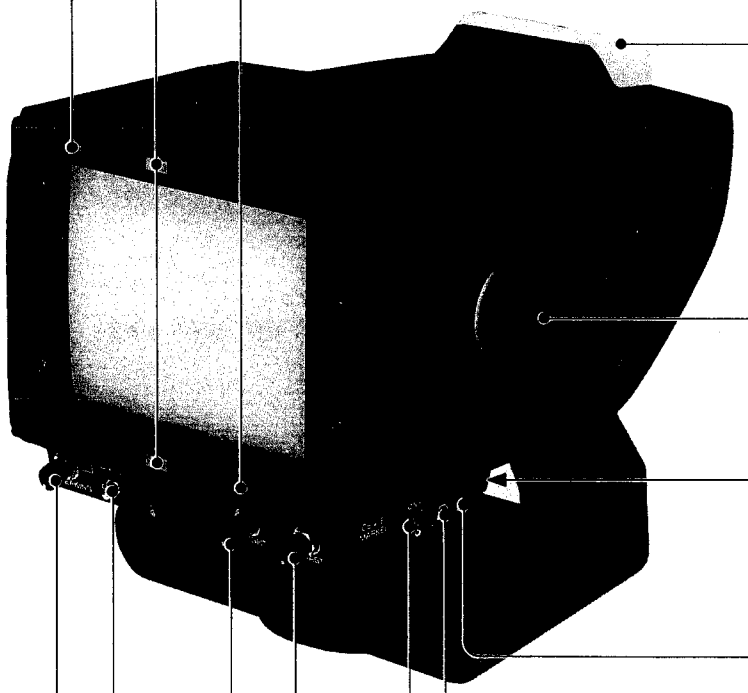
防滴構造

JIS防滴II型対応となっております。

スタジオ用屋内フード(付属)およびOB用屋外フードVFH-550(別売り)を取り付け可能

堅牢で操作性のよいスタジオ用屋内フードと、遮光性に優れているOB(Outside Broadcasting:屋外番組制作)用屋外フード(VFH-550)を用意しています。

1-2. 各部の名称と働き



R TALLY ランプ(赤)
レッドタリー信号が入力すると、点灯します。

G TALLY ランプ(緑)
グリーンタリー信号が入力すると、点灯します。

アップタリーランプ(赤)
ナンバープレート(付属)を取り付け可能です。
UP TALLYスイッチをONにすると、R TALLY ランプと同様に働きます。

チルティングロックレバー
チルティングポジションを任意の位置でロックできます。

12ピンコネクター
接続ケーブル(付属)を使って、ビデオカメラのVFコネクターと接続します。
ビデオカメラから電源・映像信号・タリー信号が入力されます。

CENTER MARKER V
センターマーカーの位置を上下方向に画面サイズで±5%調整できます。

下に動く ⊖ V 上に動く

CENTER MARKER H
センターマーカーの位置を左右方向に画面サイズで±5%調整できます。

左に動く ⊖ H 右に動く

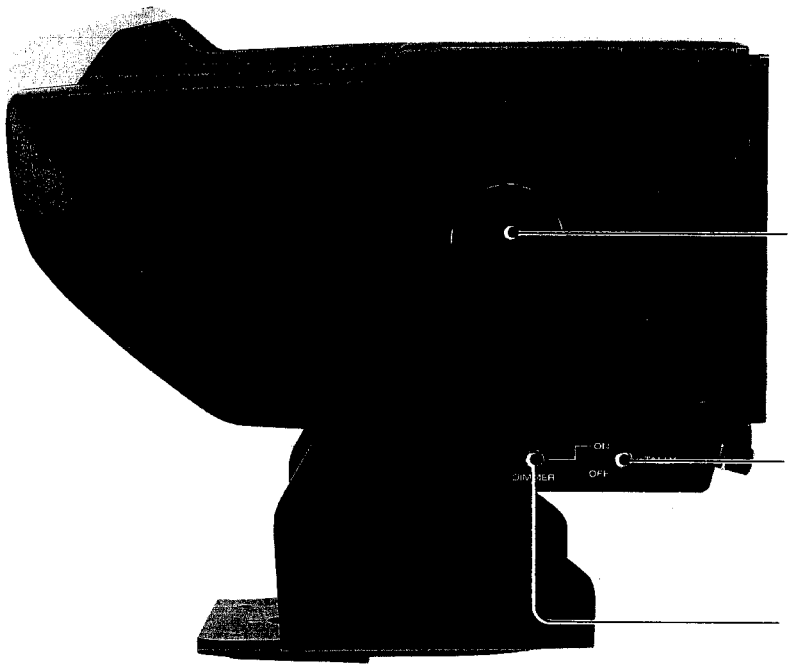
MARKERスイッチ＊
ONにすると、画面にセンターマーカーおよびセーフティゾーン(内部スイッチにてON/OFF可能)が表示されます。

CONTRASTつまみ＊
画像のコントラスト(濃淡)を調整します。

BRIGHTつまみ＊
画像の明るさを調整します。

PEAKINGスイッチとPEAKINGつまみ＊
スイッチをONにすると、つまみで画像の輪郭を補正することができます。

＊これらのつまみによる調整は、ビデオカメラの出力信号には影響ありません。



チルティング ノブ
スムーズなチルト動作に調整できます。

UP TALLYスイッチ
ONにすると、アップタリーランプがR
TALLY ランプと同様に働きます。

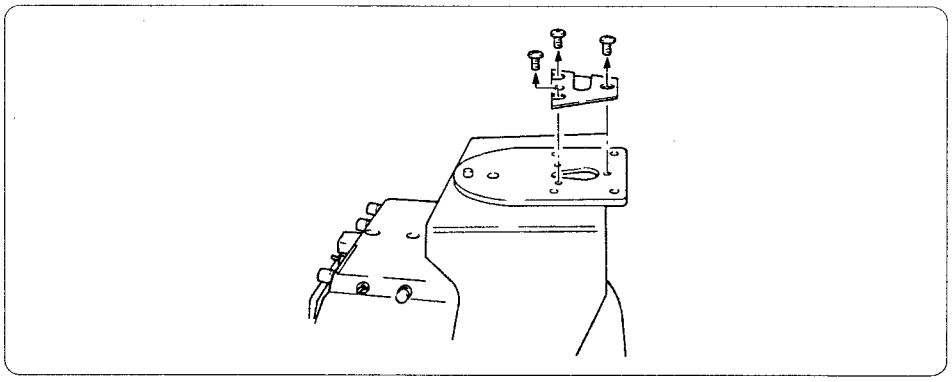
UP TALLY DIMMER
アップタリーランプの明るさを調整します。

1-3. 取り付け

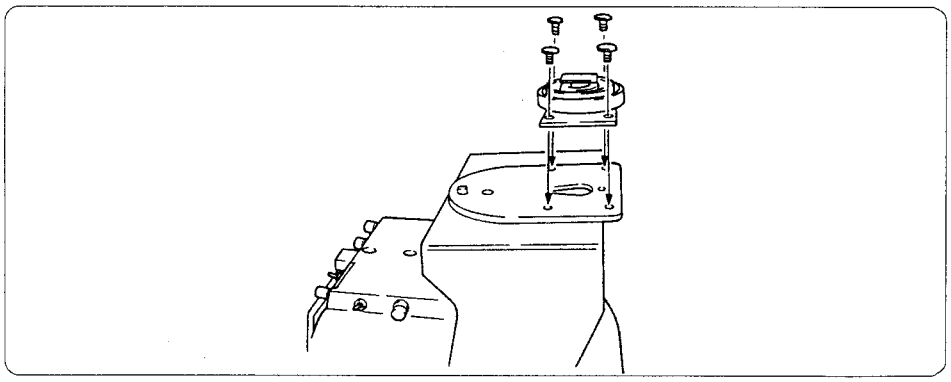
1-3-1. BVF-55の取り付けかた

カメラアダプターCA-50/55に取り付ける場合

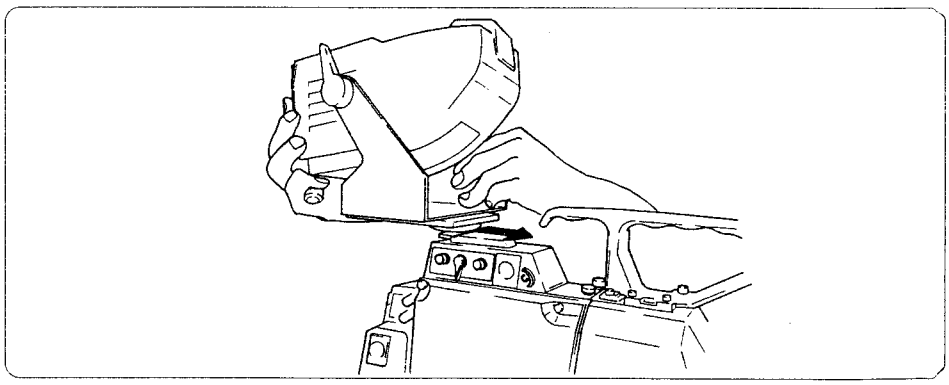
1 Vウェッジシューをねじ(+B 4×6, 3本)とともにBVF-55の底面から取り外す。



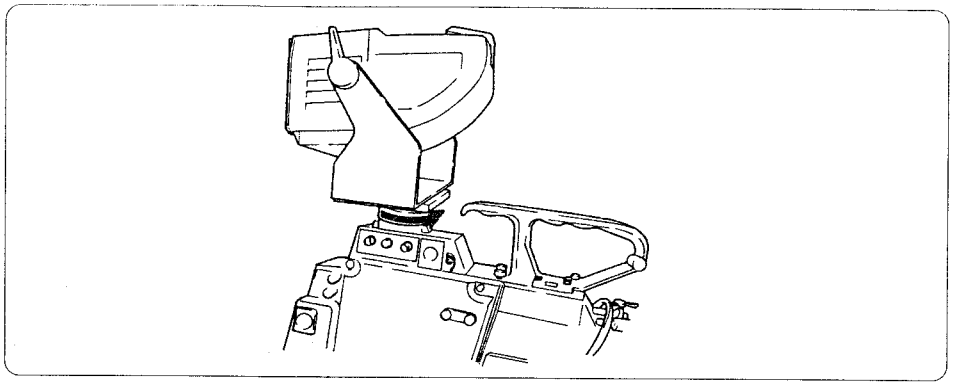
2 スライドシュー(付属)をねじ(+B 4×8, 4本, 付属)にてBVF-55の底面に取り付ける。



3 スライドシューを取り付けたBVF-55をカメラアダプターのビューファインダーシューに取り付ける。



4 リングを回して、BVF-55をカメラアダプターに固定する。

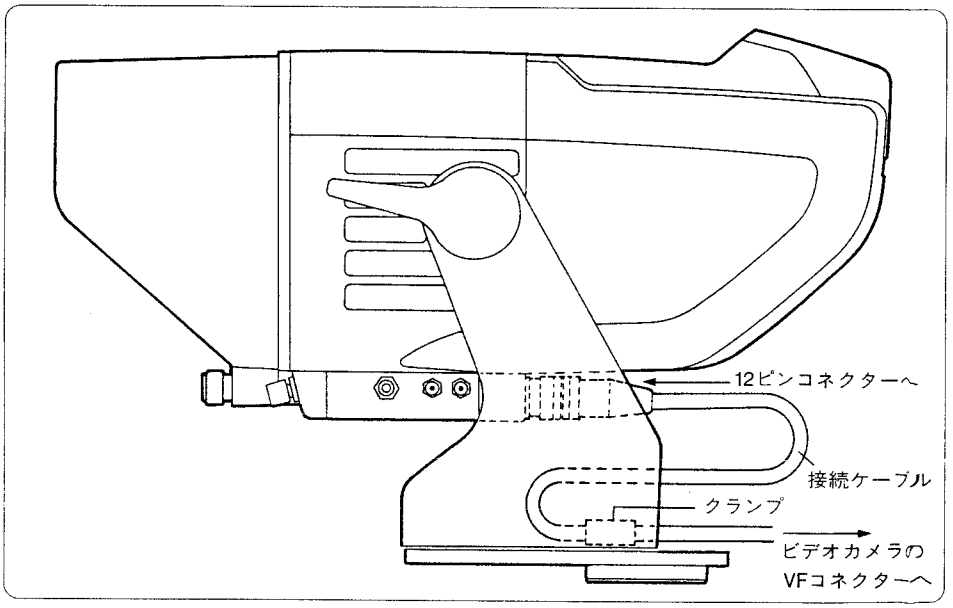


5 カメラの1.5インチビューファインダーを取り外す。

取り外しかたについては、カメラのオペレーションマニュアルをご覧ください。

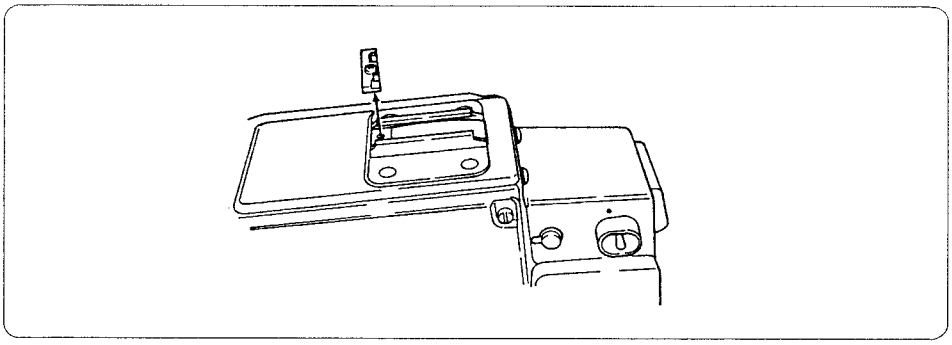
6 接続ケーブル(付属)を使用して、BVF-55の12ピンコネクターとビデオカメラのVFコネクターとを接続する。

接続ケーブルは、下図のようにクランプに通してください。



カメラアダプターCA-57に取り付ける場合

1 カメラアダプターからビューファインダーシューを取り外す。



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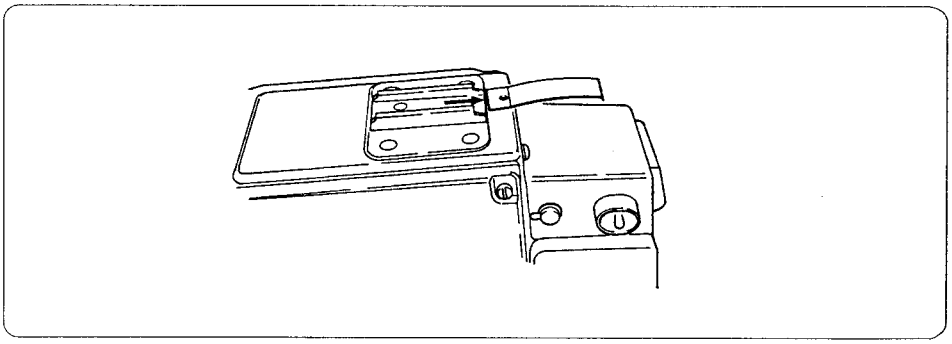

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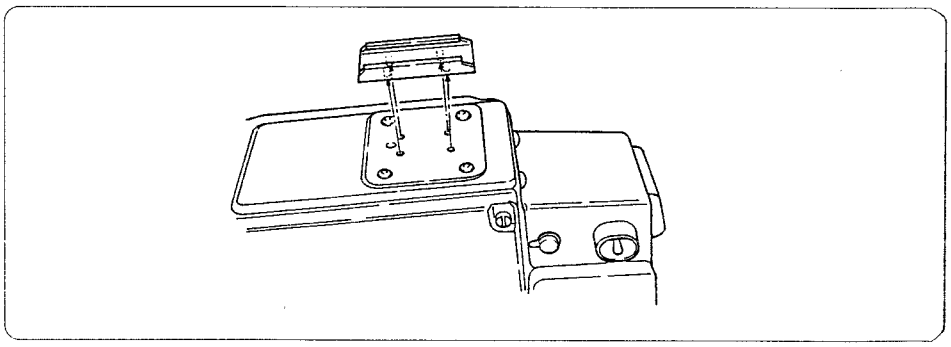

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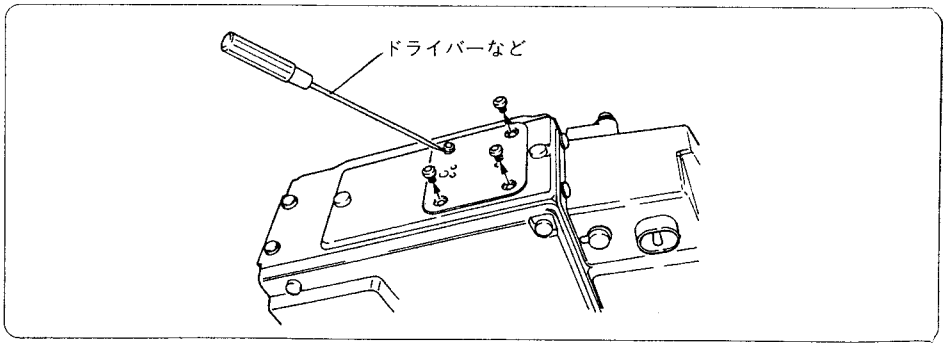
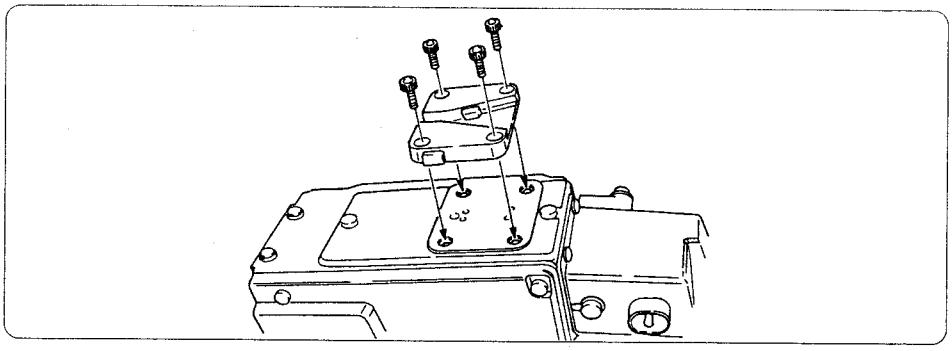
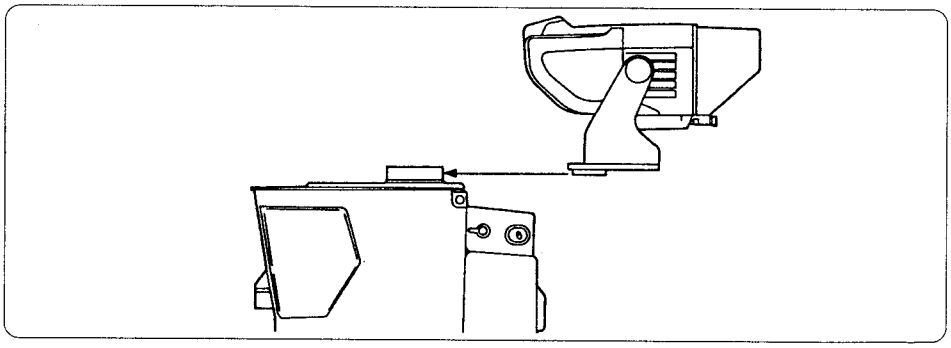


2 六角レンチ(付属)と六角ボルト(4×12、4本、付属)を使って、Vウェッジシューアタッチメント(付属)をカメラアダプターに取り付ける。



3 BVF-55をカメラアダプターに取り付ける。

取り付けると、カチッと音がして固定されます。



4 カメラの1.5インチビューファインダーを取り外す。

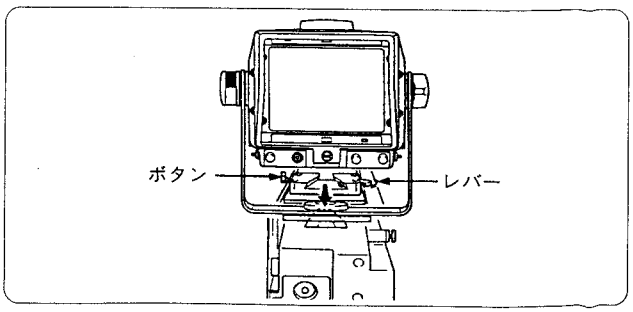
取り外しかたについては、カメラのオペレーションマニュアルをご覧ください。

5 接続ケーブル(付属)を使用して、BVF-55の12ピンコネクターとビデオカメラのVFコネクターとを接続する。

接続ケーブルの引き回しかたについては、「カメラアダプターCA-50/55に取り付ける場合」をご覧ください。

BVF-55をCA-57から取り外すには

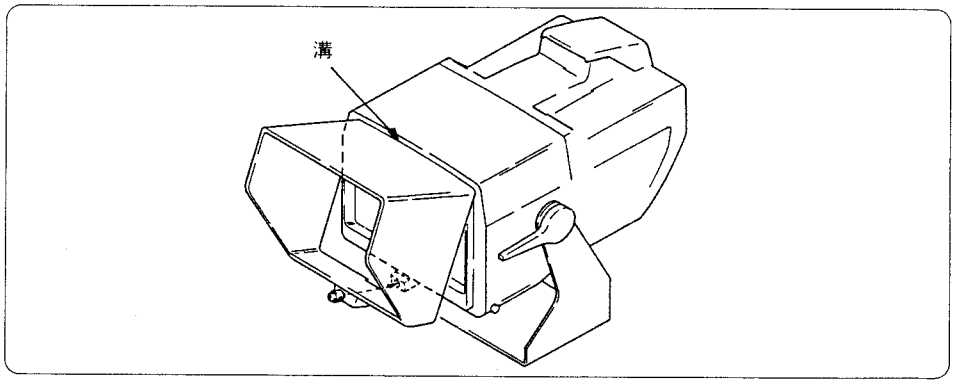
レバーを引きながら、ボタンを押して取り外します。



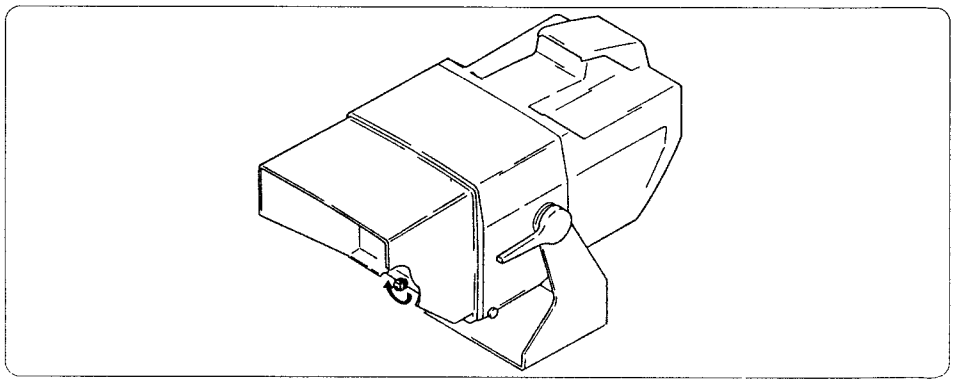
1-3-2. スタジオ用モニターフード(付属)、OB用屋外フードVFH-550(別売り)の取り付けかた

OB用屋外フードVFH-550(別売り)の取り付けかたは、スタジオ用モニターフード(付属)と同じです。ここでは、スタジオ用モニターフード(付属)の取り付けかたとして説明します。

1 溝に引っかけて、取り付ける。

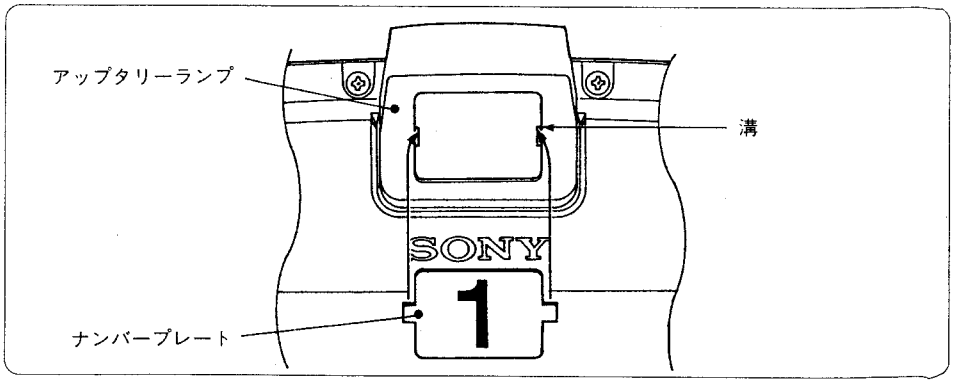


2 ねじを回して、固定する。



1-3-3. ナンバープレート(付属)の取り付けかた

ナンバープレートの左右のつめをアップタリーランプの溝に差し込みます。



1-4. 使いかた

1-4-1. 電源の投入

カメラアダプターの電源を入れると、ビューファインダーにも電源が入ります。
電源を入れて数秒後に、画像が現われます。

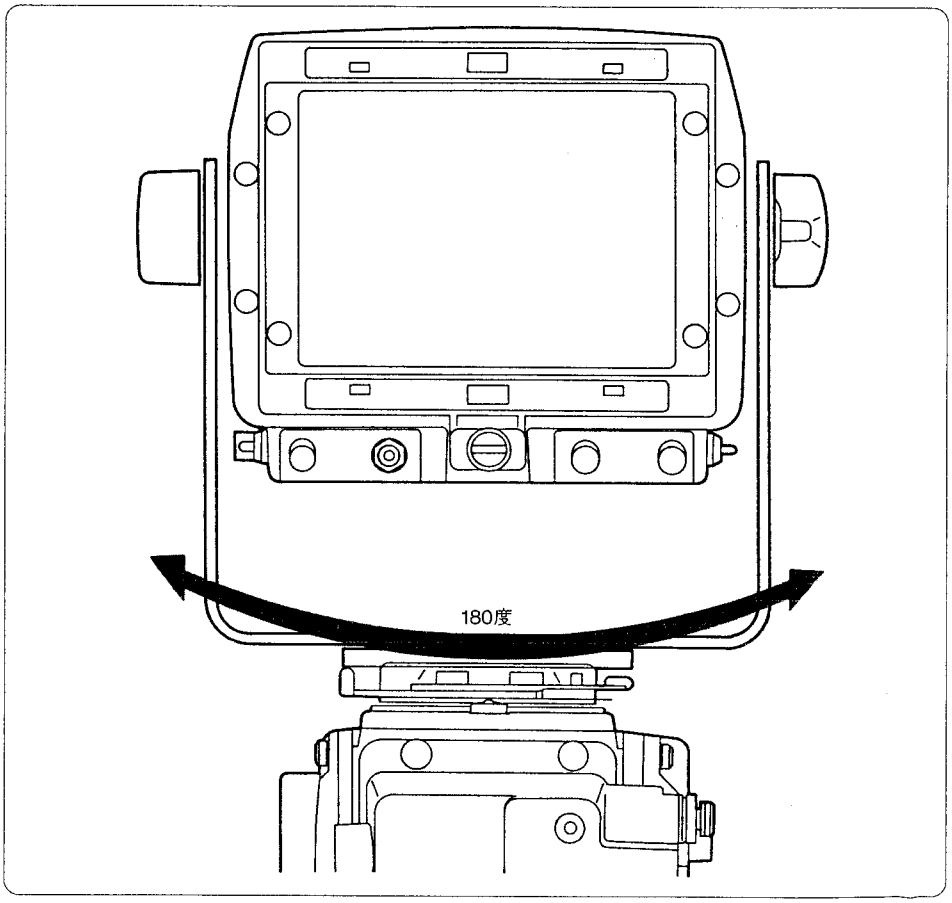
BRIGHTつまみに関するご注意

BRIGHTつまみが左いっぱいになっていると、画像が出ないことがありますのでご注意ください。

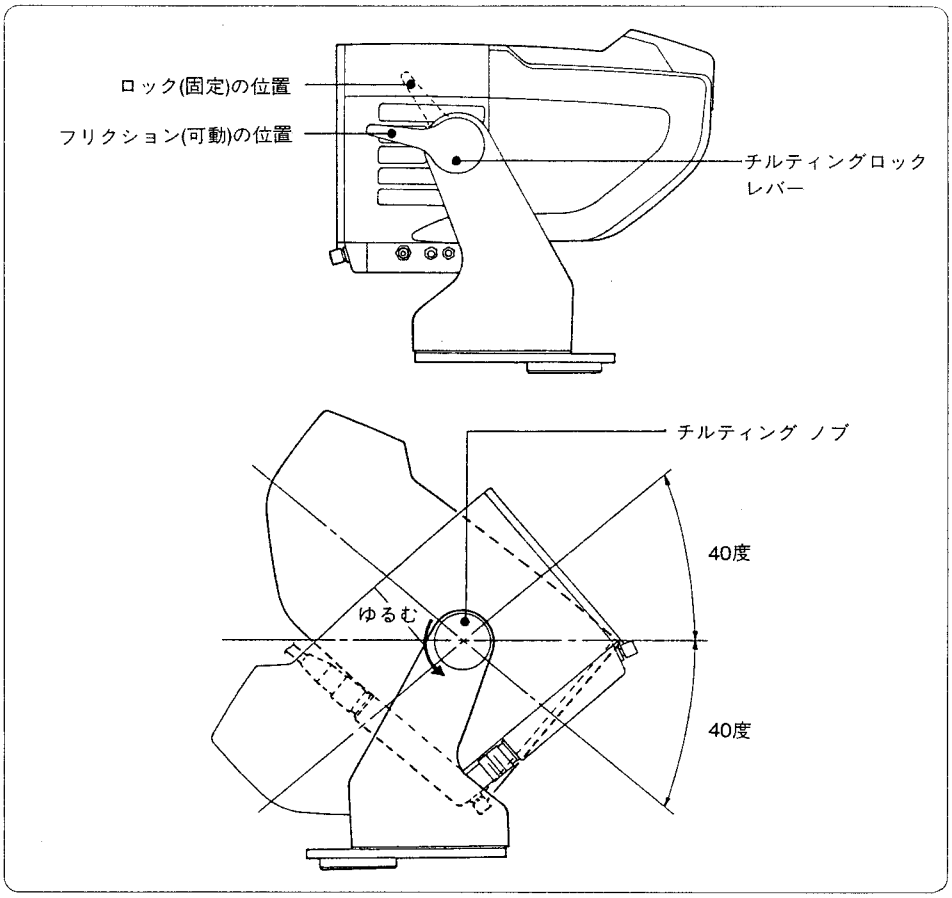
1-4-2. 位置調整

ビューファインダーの位置を以下のように調整して、お使いください。

パンニング調整



チルティング調整



1 チルティングロックレバーをフリクション(可動)の位置にする。

2 チルティングノブを回して、スムーズなチルト動作を決める。

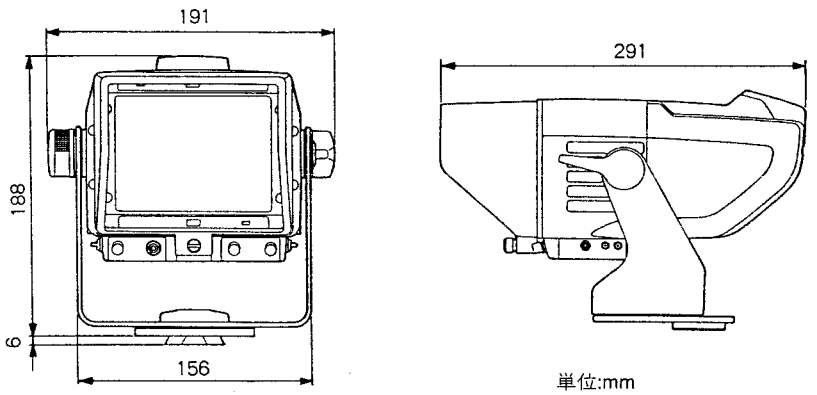
3 チルティング角度を調整する。

チルティング角度を固定するときは、チルティングロックレバーをロック(固定)の位置にする。

1-5. 主な仕様

ブラウン管	5型モノクローム
	有効画面寸法：73×97mm
信号方式	EIA標準
走査	2：1インターレース， 525本
	5%アンダースキャン
	水平リニアリティ 3%以下
	垂直リニアリティ 3%以下
解像度	650本以上(中心)， 550本以上(周辺)
入力端子	12ピンコネクター
	映像入力：1Vp-p，同期負，1kΩ
画面歪	3%以下
周波数特性	−3dB(10MHz)
電源	DC10.5V～17V， 定格12V
消費電力	10W
動作周囲温度	−10°C～＋50°C
動作周囲温度	0～90%
	結露しないこと
動作高度	約3050m
重量	本体：約1.9kg
	雲台取り付け時：約2.5kg
付属品	スライドシュー(1)
	Vウェッジシューアタッチメント (1)
	ねじ (1)
	六角レンチ (1)
	接続ケーブル (1)
	スタジオ用モニターフード (1)

外形寸法図



単位:mm

仕様および外観は，改良のため予告なく変更することがありますが，ご了承ください。

SECTION 1 OPERATION

1-1. Overview

The BVF-55/55CE electronic viewfinder is a 5-inch monochrome electronic viewfinder designed for attachment to a Betacam video camera with the CA-50/50P/55/55P/57/57P camera adapter.
The main features are as shown below.

Main features

Low power consumption
Wide voltage range of 10.5 to 17V.
Low power consumption (approx. 10W).

High resolution
High-resolution picture tube, with horizontal resolution of over 650 lines.

Phase-corrected peaking circuit (for both side edges)
Adoption of the peaking circuit ensures sharp pictures and thus make forcussing easier.

Center marker and safety zone indicator
It is possible to display a center marker and safety zone indicator (effective picture area: 90%).

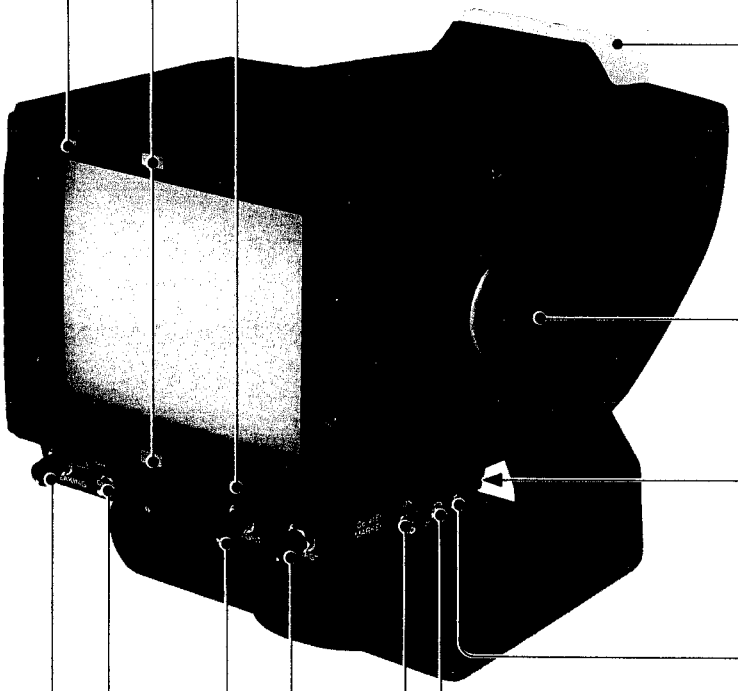
Large up-tally lamp
The up-tally lamp is large and easier to see by switching from white to red.
The up-tally lamp with the supplied number plate attached can be used for the multi-camera operations.
You can adjust the lamp brightness.

Two tally system
Each lamp lights corresponding to whether a red tally or green tally signal is input.

Superior operation
Panning up to 90 degrees left and right is possible.
Tilting 40 degrees up and down is also possible.
Because the BVF-55/55CE is light (approx. 1.9 kg) and features a strong aluminum diecast and water-resist body, it has no movement of the weight center and offers superior operations.

Supplied studio monitor hood and VFH-550 optional OB hood
The supplied studio monitor hood is strong and easy to use.
The VFH-550 offers superior shading character.

1-2. Functions of parts and controls



R TALLY lamp (red)
Lights when the red tally signal is input.

G TALLY lamp (green)
Lights when the green tally signal is input.

Up-tally lamp (red)
Set UP TALLY switch to ON. The lamp lights in the same way as the R tally lamp.
The supplied number plate can be attached to this.

Tilt lock lever
Fixes any tilting position.

12-pin connector
Connects to a video camera's VF connector, using the supplied connecting cable.
Power and video/tally signals are supplied through this connector.

Center marker V control
Adjusts the vertical position of the center marker within ±5% of the screen size.

down ⊖ up
V

Center marker H control
Adjusts the holizontal position of the center marker within ±5% of the screen size.

left ⊖ right
H

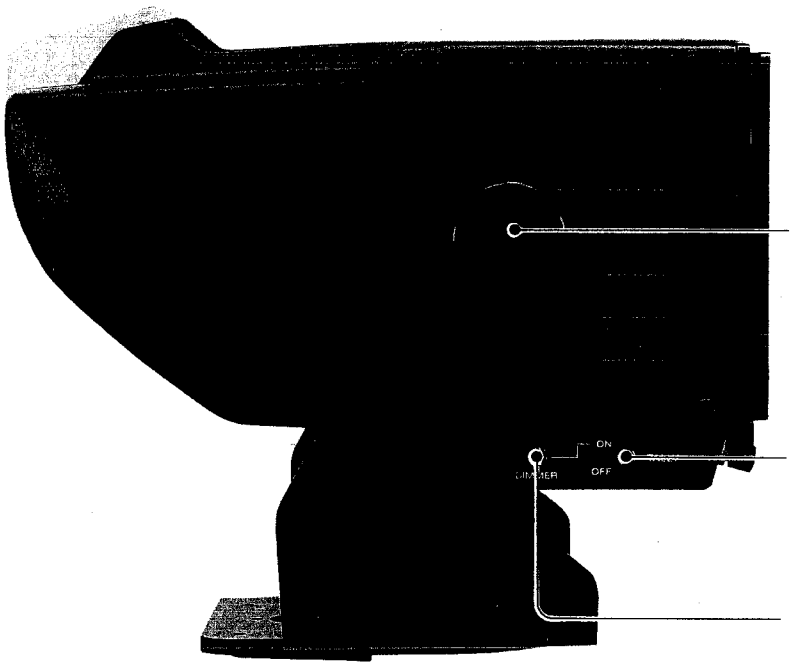
MARKER switch *
Setting this switch to ON displays the center marker and safety zone indicatior (ON/OFF by internal switch).

CONTRAST knob *
Adjusts the contrast of the viewfinder picture.

BRIGHT knob *
Adjusts the brightness of the viewfinder picture.

PEAKING switch and knob *
Setting this switch to ON and turning the knob corrects viewfinder image.
Used to adjust the focus on the video camera.

* These controls do not affect the output signal of the video camera.



Tilt knob
Adjusts the tilt friction.

UP TALLY switch
When this switch is set to ON, the UP TALLY lamp lights in the same way as the R tally lamp.

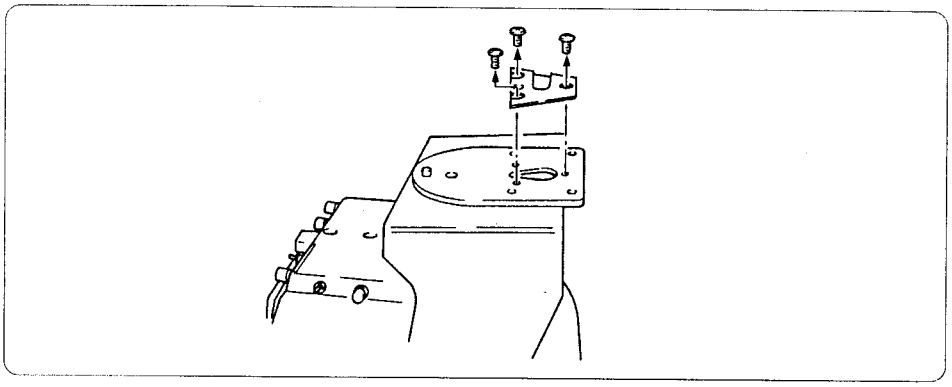
UP TALLY DIMMER control
Adjusts the brightness of the UP TALLY lamp.

1-3. Attaching accessories

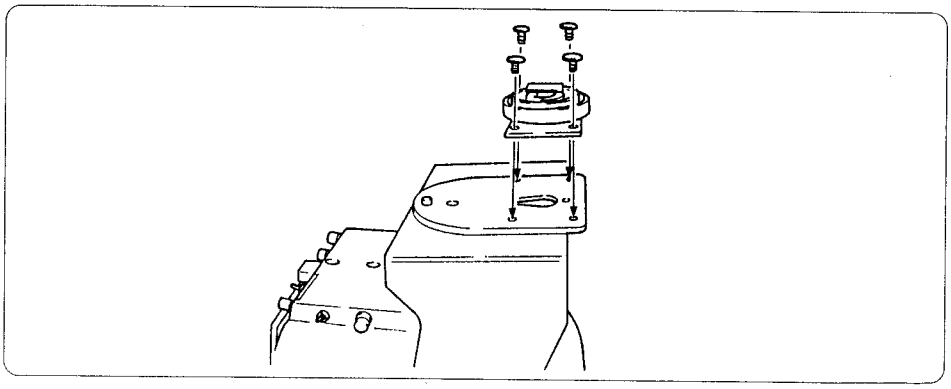
1-3-1. Attaching the BVF-55/55CE

Attaching to the CA-50/50P/55/55P camera adaptor

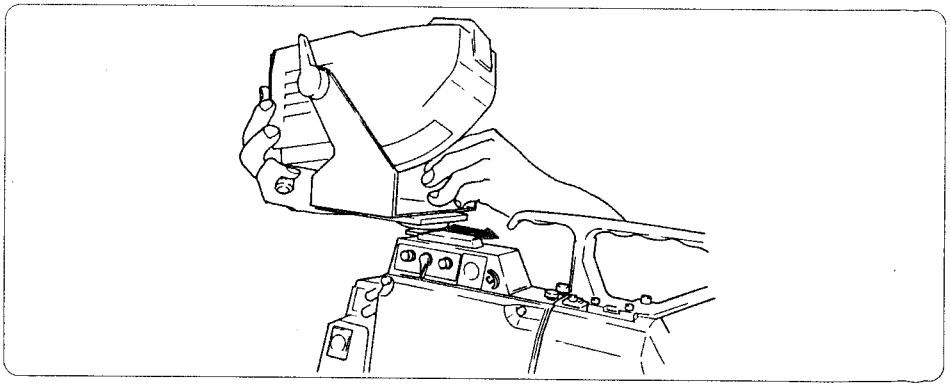
1 Detach the V-wedge shoe with three screws (+B 4×6) from the bottom of the BVF-55/55CE.



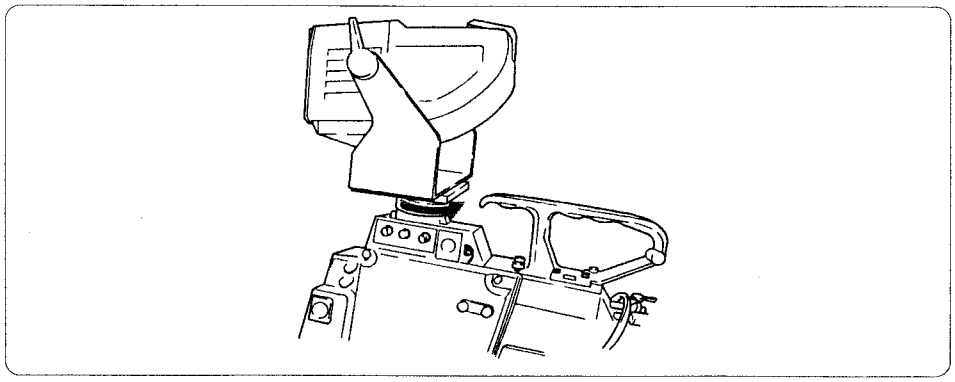
2 Attach the supplied slide shoe to the bottom of the BVF-55/55CE using the supplied four screws (+B 4×8).



3 Attach the BVF-55/55CE to the viewfinder shoe of the camera adaptor.

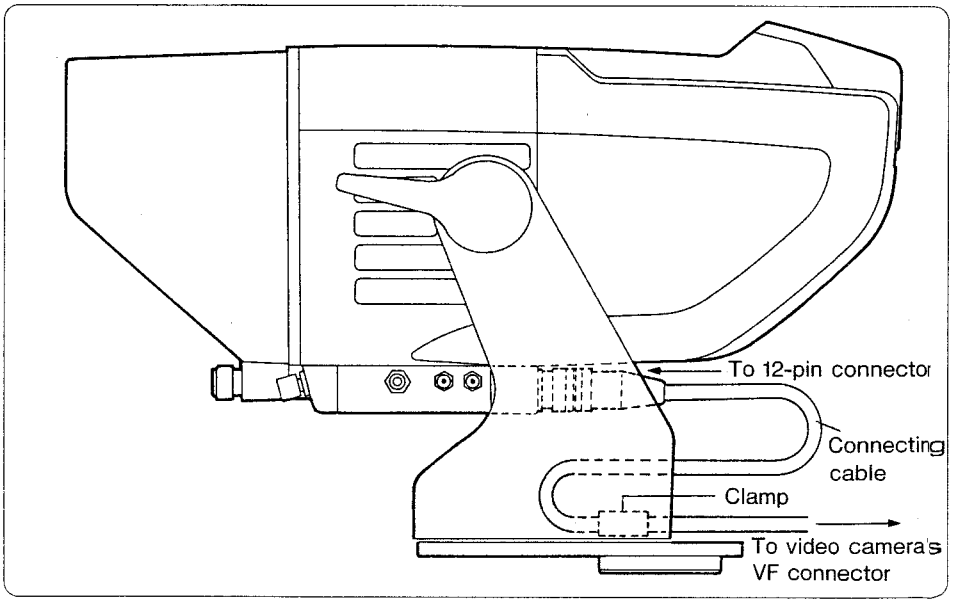


4 Fix the BVF-55/55CE by turning the ring.



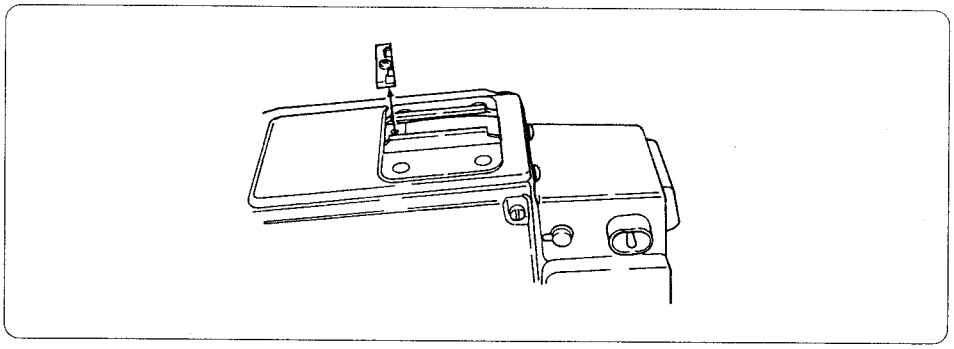
5 Detach the 1.5-inch viewfinder from the camera.
For the detaching, refer to the operation manual of the camera.

6 Connect the 12-pin connector to the video camera's VF connector using the supplied connecting cable.
And attach the connecting cable to the clamp.



Attaching to the CA-57/57P camera adaptor

1 Detach the viewfinder shoe from the camera adaptor.



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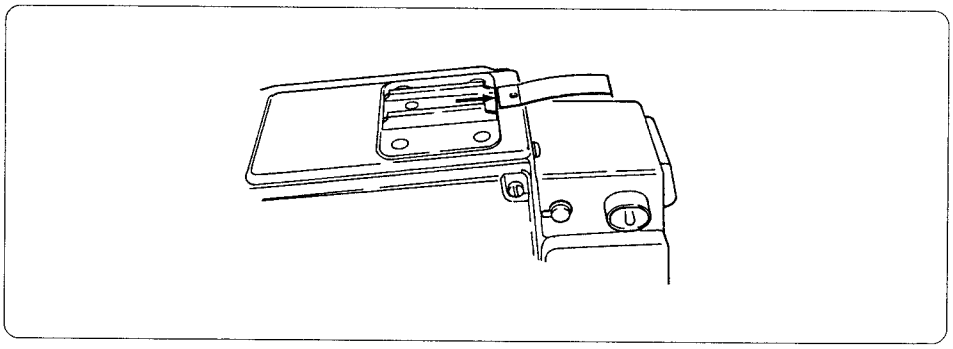

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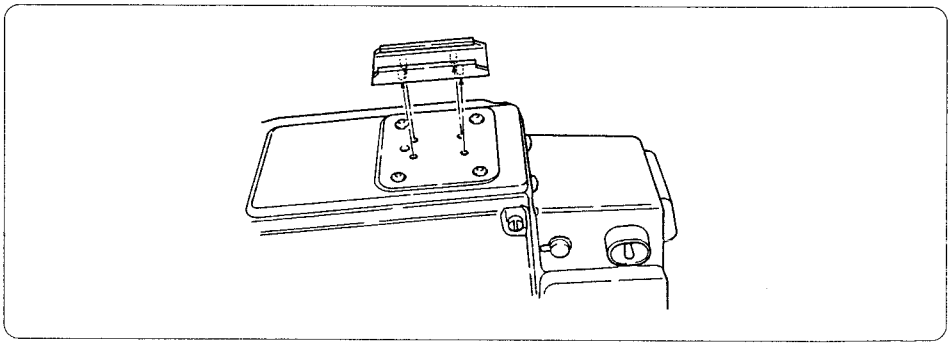

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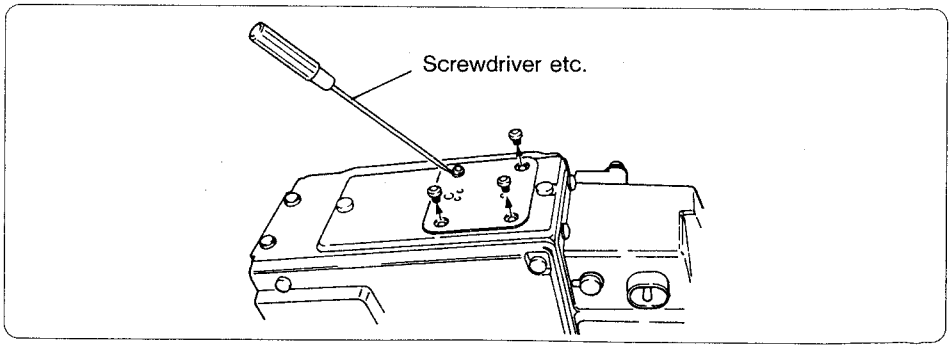
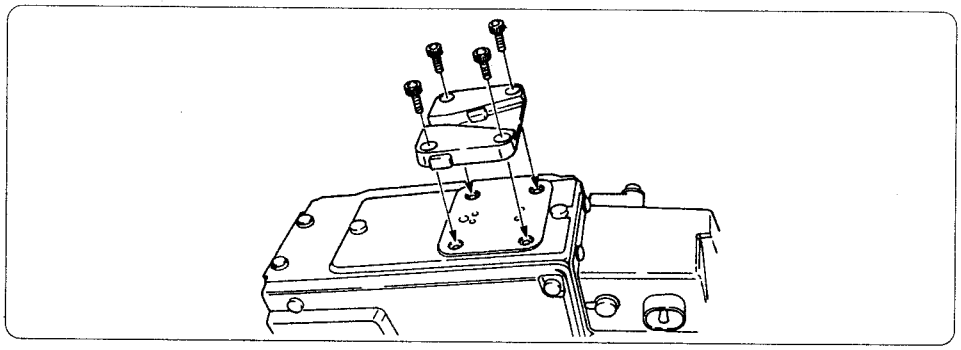
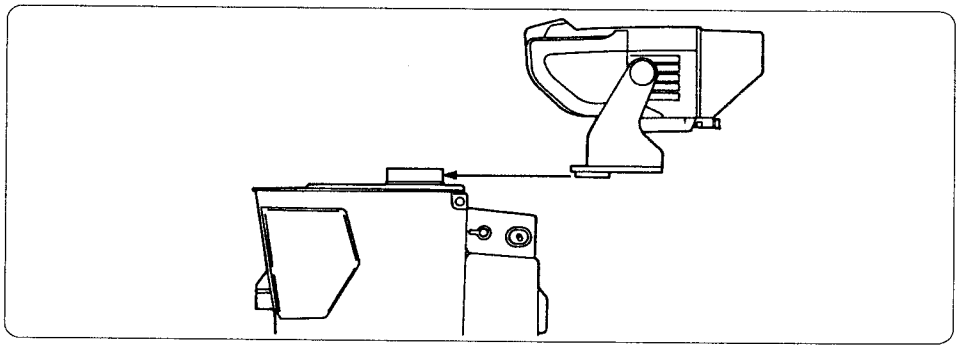


2 Attach the supplied V-wedge shoe attachment to the camera adaptor using the supplied hexagon wrench and four hexagon screws (4×12).



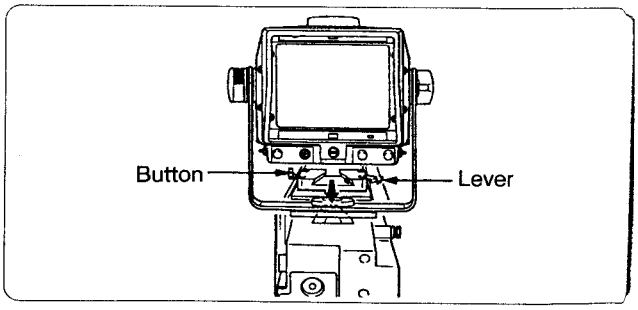
3 Slide the BVF-55/55CE forward along the V-wedge shoe attachment until it cliks and is fixed.



4 Detach the 1.5-inch viewfinder from the camera.
For the detaching, refer to the operation manual of the camera.

5 Connects the 12-pin connector to the video camera's VF connector using the supplied connecting cable.
The connecting cable is illustrated in "Attaching to the CA-50/50P/55/55P camera adaptor".

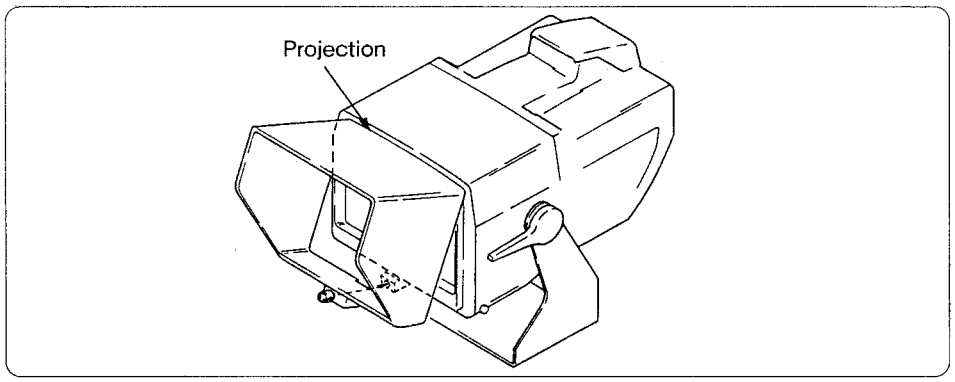
To detach the BVF-55/55CE from the camera adaptor
Detach the BVF-55/55CE by pulling the lever and pushing the button.



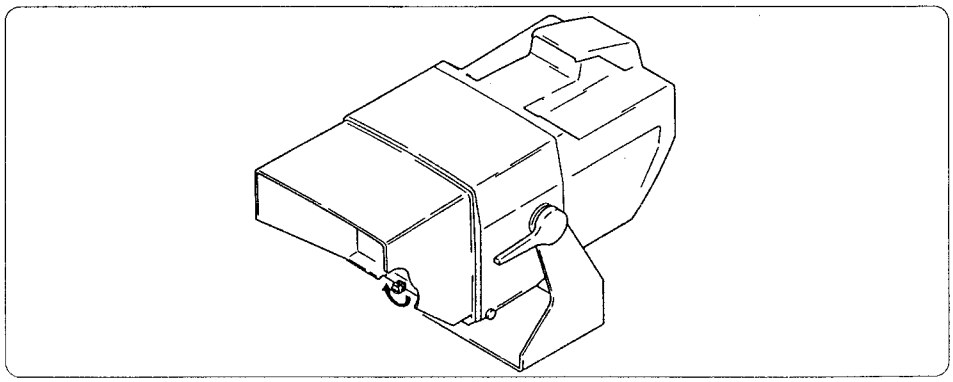
1-3-2. Attaching the supplied studio monitor hood or the VFH-550 optional OB hood

You can attach the VFH-550 in the same way as the studio monitor hood.
This section describes the procedure of attaching the studio monitor hood.

1 To attach the hood, hook the upper part of the hood over the projection on the top of the BVF-55/55CE.

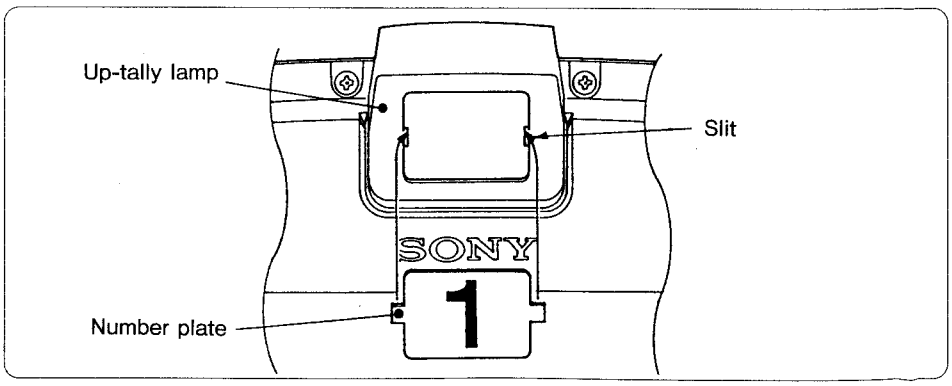


2 Tighten the screw to fix the BVF-55/55CE.



1-3-3. Attaching the supplied number plate

Insert the tabs on the sides of the number plate into each slit in the up-tally lamp.



1-4. How to Use the BVF-55/55CE

1-4-1. Turning on the BVF-55/55CE

When the camera adaptor is connected to the video camera and the camera adaptor is turned on, power is supplied to the BVF-55/55CE.
The picture will appear several seconds after turning on the camera adaptor.

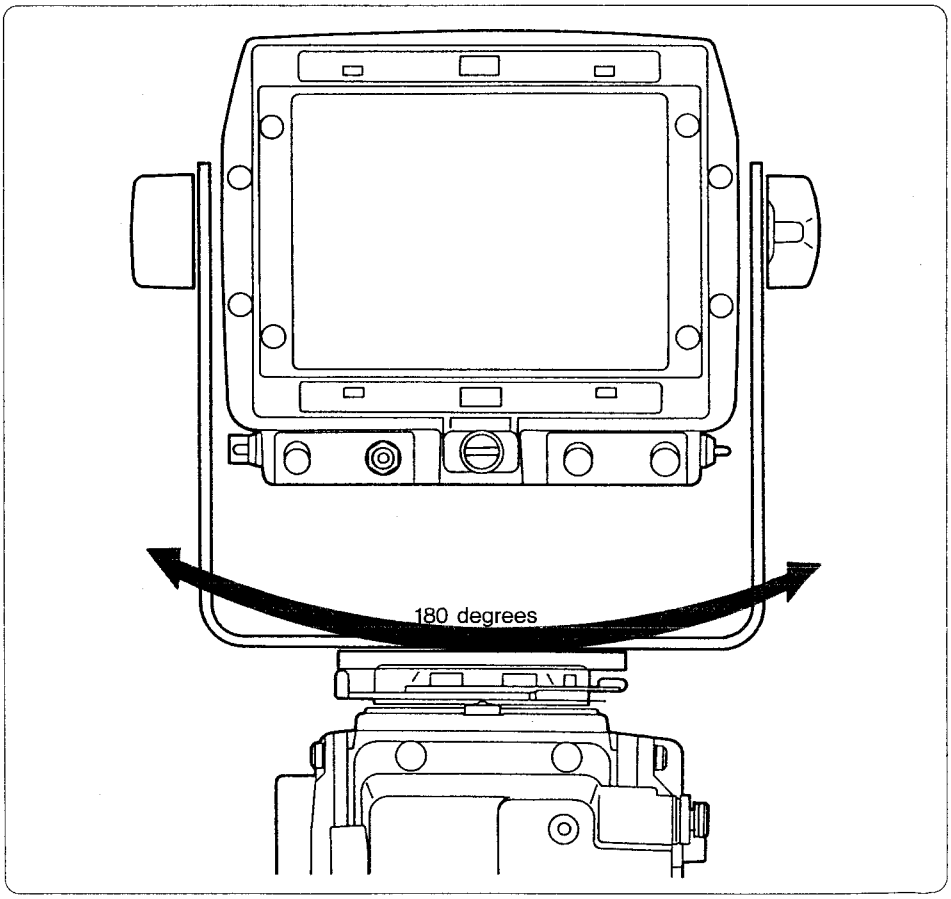
Note on using the BRIGHT control

When the BRIGHT control is turned fully counterclockwise, no picture may appear in the viewfinder.

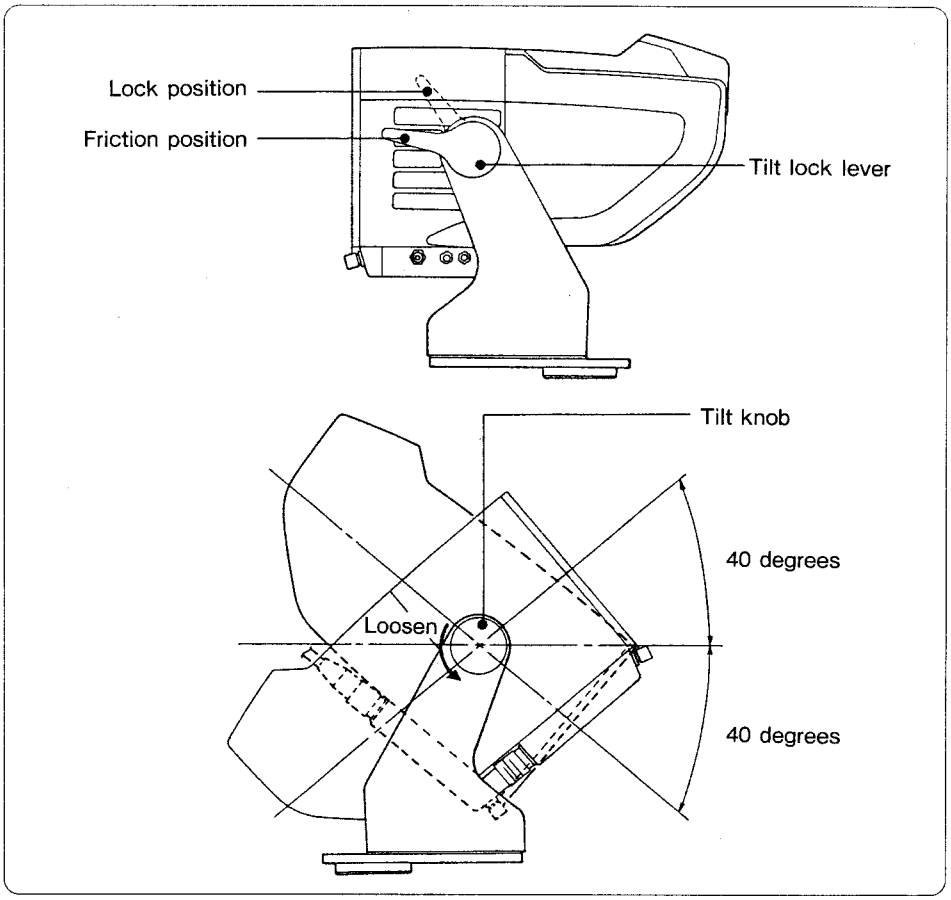
1-4-2. Adjusting the viewfinder position

Use the BVF-55/55CE after adjusting the viewfinder position as follows:

Panning adjustment



Tilt adjustment



1 Set the tilt lock lever to the friction position.

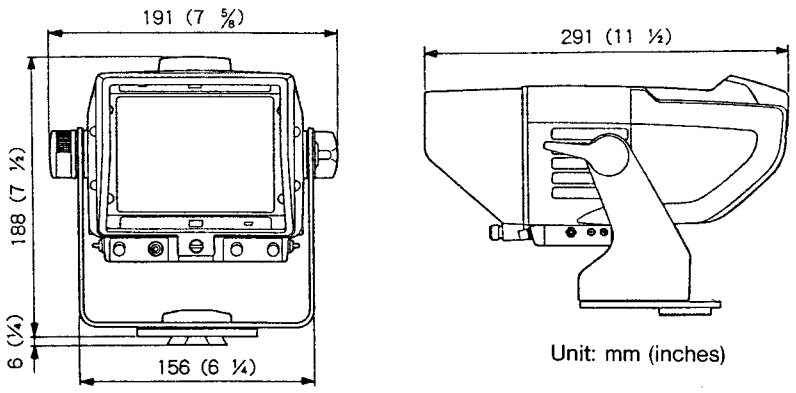
2 Adjust the friction by turning the tilt knob.

3 Adjust the tilt.
After setting the tilt position, set the tilt lock lever to the lock position.

1-5. Specifications

CRT	5-inch monochrome
	Screen size:73×97mm(h/v)
	(2⅞×3⅞ inches)
Video signal	BVF-55: EIA standards
	BVF-55CE: CCIR standards
Scanning	2:1 intelace. 525 lines(BVF-55).
	625 lines(BVF-55CE). 5% underscanning.
	Horizontal linearity error: less than 3%
	Vertical linearity error: less than 3%
Resolution	More than 650TV lines at center
	More than 550TV lines at corners
Input	12-pin connector
	Video input: 1 Vp-p. sync negative, 1 K ohms
Geometric distortion	Less than 3%
Frequency response	−3 dB at 10 MHz
Power requirements	10.5V to 17V DC, nominal 12V DC
Power consumption	10W
Operating temperature	−10°C to +50°C (14°F to 122°F)
Operating humidity	0 to 90%
	Non-condensing
Operating altitude	Approx. 3050 m (10,000 feet)
Weight	Body: Approx. 1.9kg (4 lb 2 oz)
	Body with stand: Approx. 2.5kg (5 lb 5 oz)
Supplied accessories	Slide shoe (1)
	V wedge shoe attachment (1)
	Screws (1 set)
	Hexagon wrench (1)
	Connecting cable (1)
	Stadio monitor hood (1)

Dimensions



Unit: mm (inches)

Design and specifications are subject to change without notice.

TEIL 1 BETRIEB

1-1. Überblick

Der elektronische 5-Zoll-Schwarzweiß-Sucher BVF-55/55CE ist für die Anbringung auf einer Betacam-Videokamera mit Kameraadapter CA-50/50P/55/55P/57/57P bestimmt.

Der Sucher weist folgende Hauptmerkmale auf:

Wichtige Merkmale

Niedrige Leistungsaufnahme
Großer Eingangsspannungsbereich von 10,5 bis 17 V.
Niedrige Leistungsaufnahme (ca. 10 W).

Hohe Auflösung
Bildröhre mit hoher Auflösung; Horizontalauflösung über 650 Zeilen.

Doppelrand-Entzerrerschaltkreis
Der Doppelrand-Entzerrerschaltkreis für Konturenanhebung sichert scharfe Bilder und erleichtert die Scharfeinstellung.

Zentrierungszeichen und Zonenmarkierung
Im Sucherschirm können ein Zentrierungszeichen (+) und eine Sicherheitszonen-Markierung (effektive Bildfläche: 90%) zur Anzeige gebracht werden.

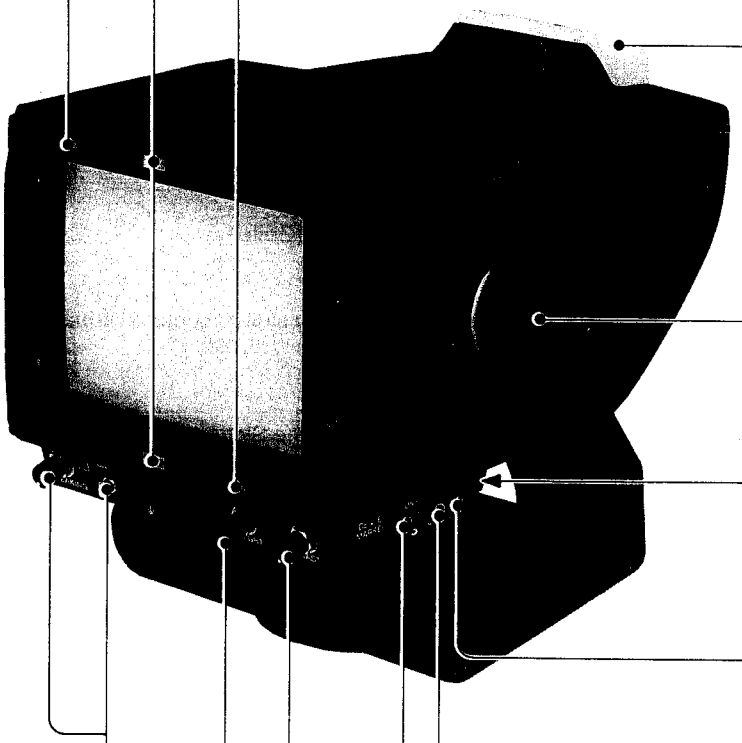
Große externe Signallampe
Die externe Signallampe kann von Weiß auf Rot geschaltet werden, um besser sichtbar zu sein.
Sie dient zusammen mit dem dazugehörigen Nummernschild (mitgeliefert) für den Betrieb bei Verwendung mehrerer Kameras.
Die Helligkeit der Lampen ist regelbar.

Doppelte Kontrollampe
Abhängig davon, ob ein Kontrollsignal für Rot oder Grün eingeht, leuchtet die entsprechende Kontrollampe auf.

Ausgezeichnete Bedienbarkeit
Der Sucher kann um bis zu 90 Grad nach links und rechts geschwenkt werden.
Die Neigung ist um bis zu 40 Grad nach oben und unten verstellbar.
Der BVF-55/55CE ist sehr leicht (ca. 1,9 kg) ausgeführt und besitzt ein wasserbeständiges robustes Alu-Druckgußgehäuse. Entsprechend wird der Schwerpunkt kaum beeinflußt, wobei ausgezeichnete Bedienbarkeit gewährleistet ist.

Mitgelieferte Studio-Monitorhaube und OB-Haube VFH-550 (Sonderzubehör)
Die mitgelieferte robuste Studio-Monitorhaube ist einfach verwendbar. OB-Haube VFH-550 bietet eine ausgezeichnete Abschattungswirkung.

1-2. Funktionen der Teile und Regler



Rote Kontrollampe (R TALLY)
Leuchtet bei Anliegen des Kontrollsignals für Rot.

Grüne Kontrollampe (G TALLY)
Leuchtet bei Anliegen des Kontrollsignals für Grün.

Externe Signallampe (rot)
Den UP TALLY-Schalter auf ON stellen. Die externe Signallampe dupliziert die Funktion der roten Kontrollampe des Sucherschirms. An der Lampe kann ein mitgeliefertes Nummernschild angebracht werden.

Arretierhebel
Zum Arretieren des Suchers in geneigter Stellung.

12pol Kameraanschluβ
Über das mitgelieferte Anschluβkabel mit dem VF-Ausgang der Kamera verbinden. Dem Anschluβ werden Strom, Video- und Kontrollsignale zugeführt.

Vertikalregler (V) des Zentrierungszeichens
Mit dem V-Regler kann das Zentrierungszeichen innerhalb +5% der Bildschirmgröβe vertikal verschoben werden.

unten ⊖ oben
V

Horizontalregler (H) des Zentrierungszeichens
Mit dem H-Regler kann das Zentrierungszeichen innerhalb +5% der Bildschirmgröβe horizontal verschoben werden.

links ⊖ rechts
H

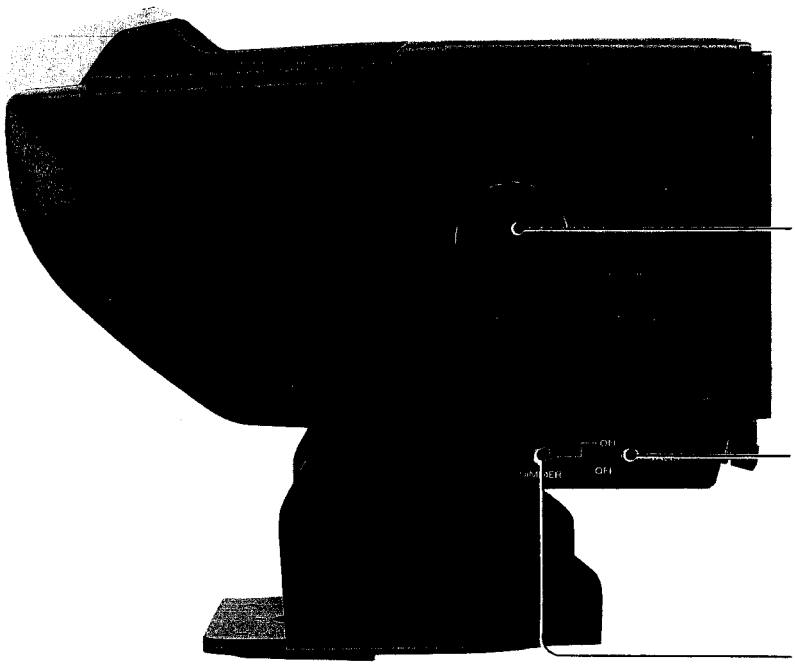
Markierungsschalter (MARKER)*
Für Anzeige des Zentrierungszeichens und der Zonenmarkierung auf ON stellen (Ein-/Ausschaltung über internen Schalter).

Kontrastregler (CONTRAST)*
Mit diesem Regler wird der Kontrast des Sucherbildes eingestellt.

Helligkeitsregler (BRIGHT)*
Mit diesem Regler wird die Helligkeit des Sucherbildes eingestellt.

Scharfeinstellschalter/-regler (PEAKING)*
Für Anhebung der Bildkonturen den Schalter auf ON stellen.
Wird bei der Scharfeinstellung der Videokamera verwendet.

* Diese Regler haben keinen Einfluβ auf die Video-Ausgangssignale der Kamera.



Reibungsknopf
Zum Einstellen des Reibungswiderstands bei der Neigungsverstellung.

Schalter für externe Kontrollampe (UP TALLY)
Wenn dieser Schalter auf ON gestellt ist, dupliziert die externe Kontrollampe die Funktion der roten Kontrollampe des Sucherschirms.

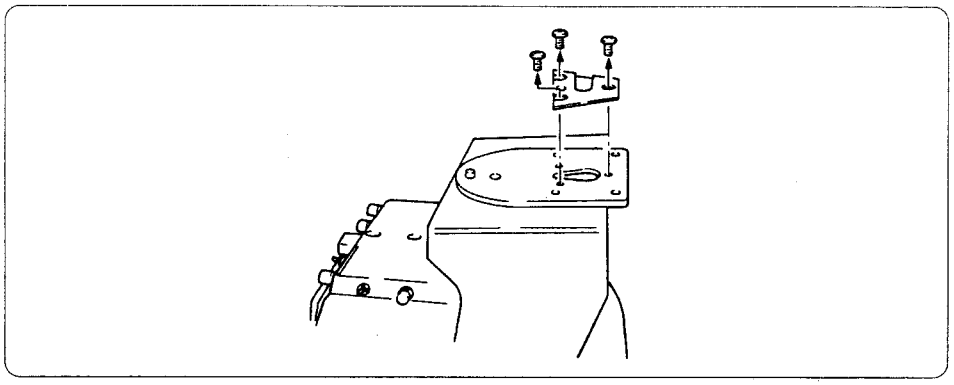
Lichtregler für externe Kontrollampe (UP TALLY DIMMER)
Regelt die Helligkeit der externen Kontrollampe.

1-3. Befestigung

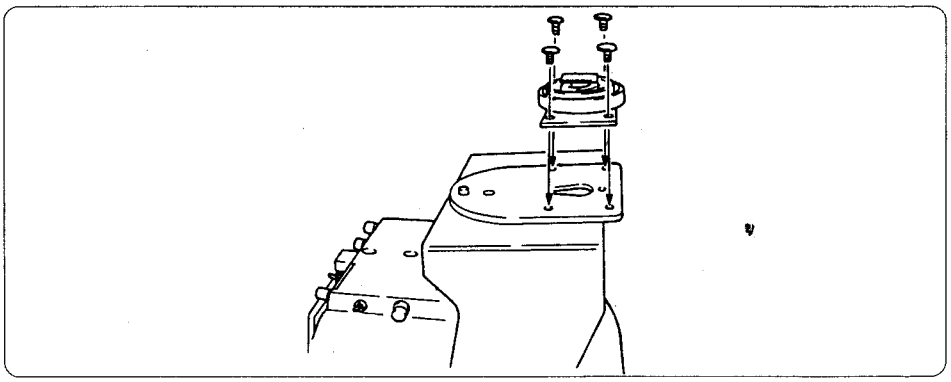
1-3-1. Anbringen des BVF-55/55CE

Anbringung an Kameraadapter CA-50/50P/55/55P

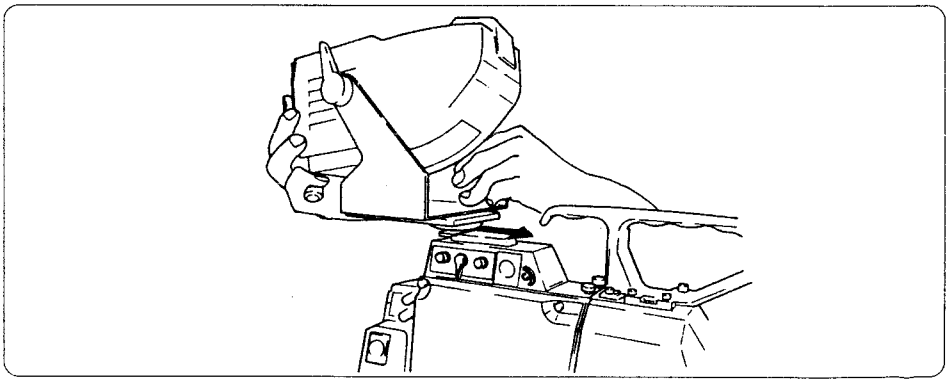
1 Den am Boden des BVF-55/55CE befindlichen keilförmigen Schuh abbauen.



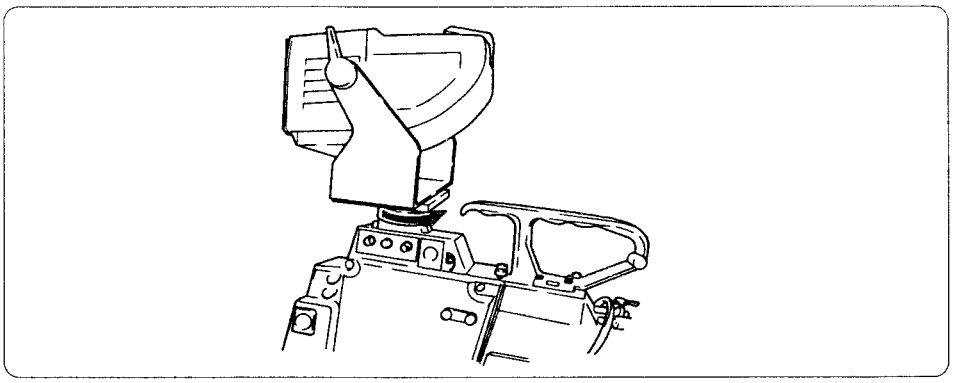
2 Den mitgelieferten Gleitschuh mit den beiliegenden vier Schrauben (+B4×8) am Boden des BVF-55/55CE anbringen.



3 Den BVF-55/55CE an der Sucherhalterung des Kameraadapters anbringen.

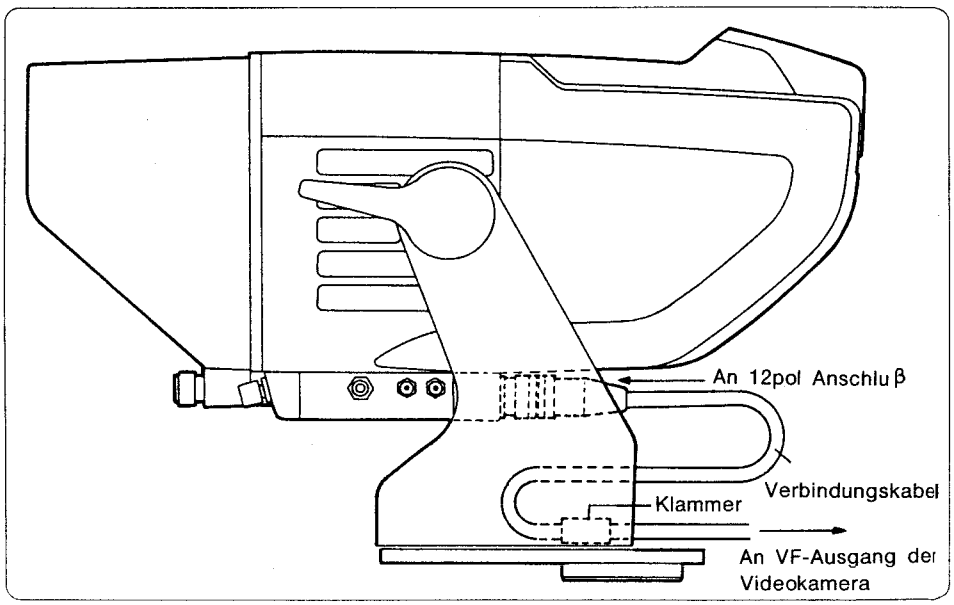


4 Den BVF-55/55CE durch Anziehen des Rings sichern.



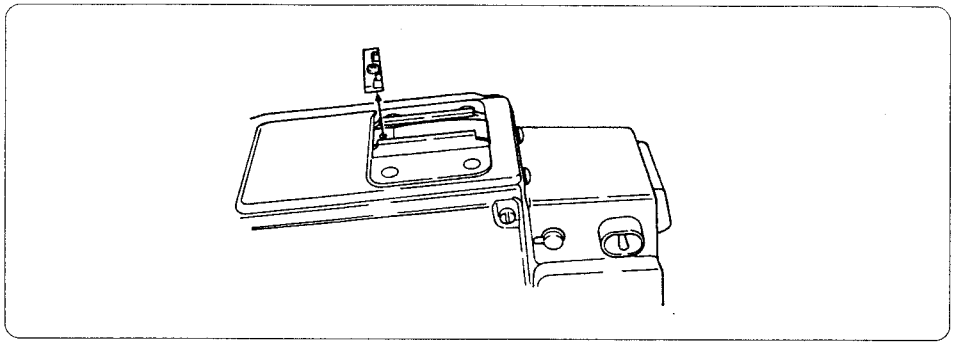
5 Den 1,5-Zoll-Sucher der Kamera abbauen.
Näheres hierzu finden Sie in der Bedienungsanleitung der Kamera.

6 Den 12pol Kameraanschluß über das mitgelieferte Kabel mit dem Sucheranschluß der Videokamera verbinden.
Das Verbindungskabel in der Klammer sichern.



Anbringung an Kameraadapter CA-57/57P

1 Den Sucherschuh des Kameraadapters abbauen.



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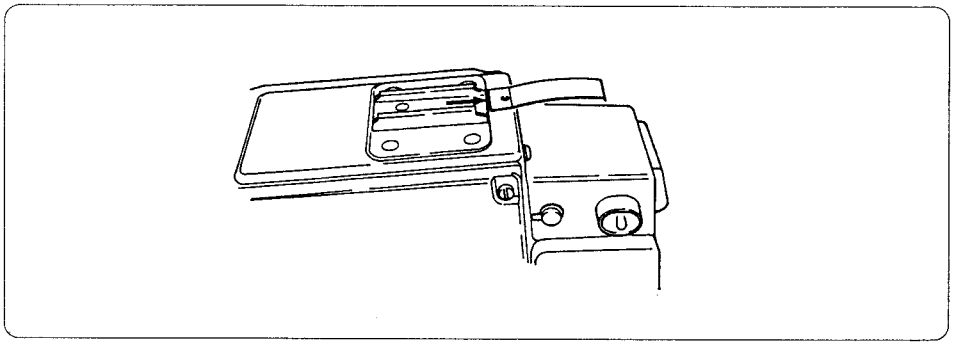

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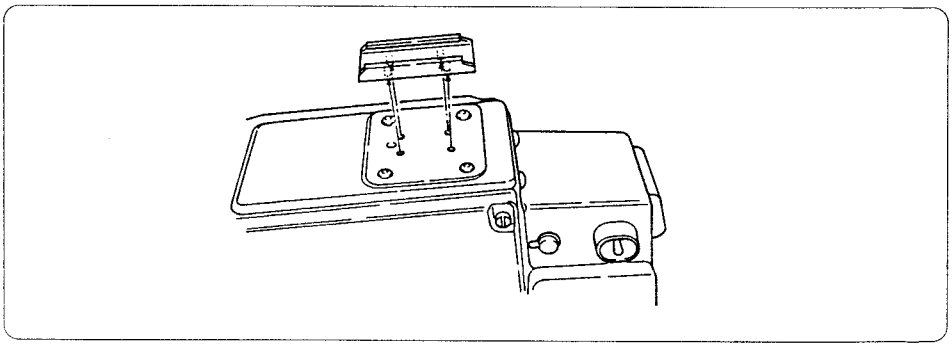

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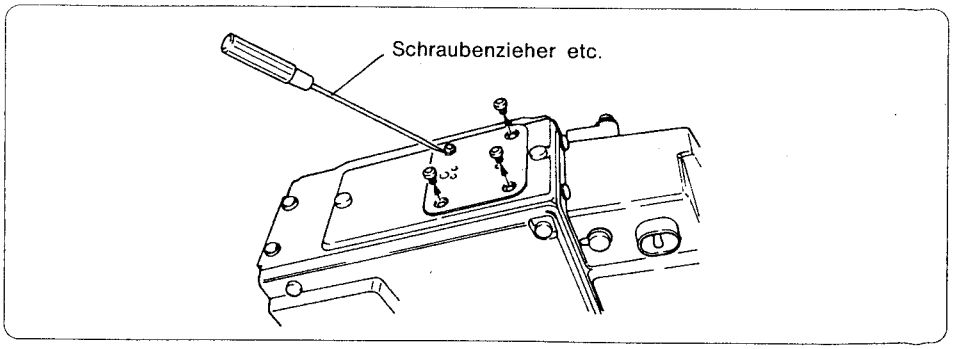
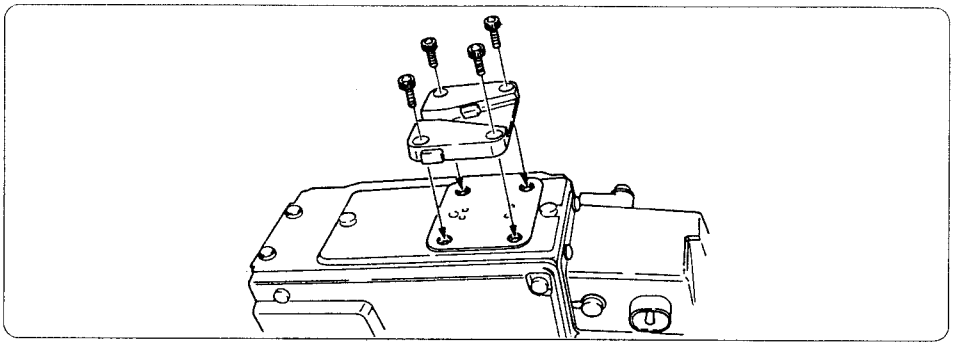
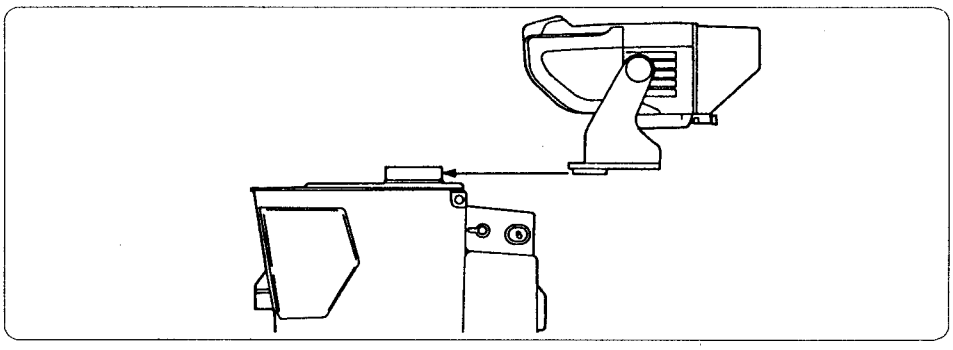


2 Die mitgelieferte Keilschuhhalterung mit Hilfe des Sechskantschlüssels und der vier Sechskantschrauben (4x12) aus dem mitgelieferten Zubehör am Kameraadapter befestigen.



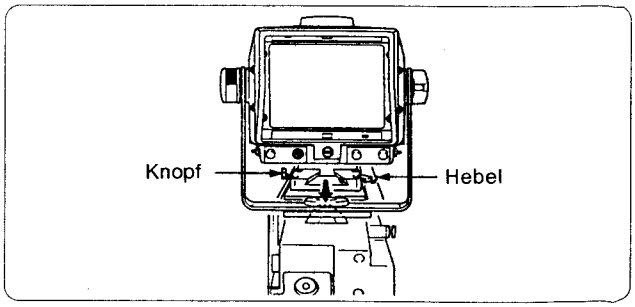
3 Den BVF-55/55CE mit dem Schuh in die Keilschuhhalterung schieben und fest einrasten lassen.

4 Den 1,5-Zoll-Sucher von der Kamera abnehmen.
Näheres hierzu finden Sie in der Bedienungsanleitung der Kamera.



5 Den 12pol Kameraanschluß über das mitgelieferte Kabel mit dem Sucheranschluß der Videokamera verbinden.
(Verbindungskabel siehe Illustration unter „Anbringung an Kameraadapter CA-50/50P/55/55P".)

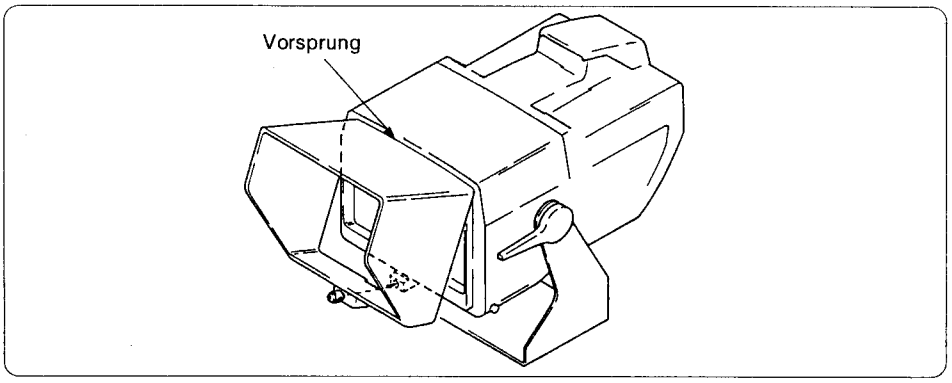
Abnehmen des BVF-55/55CE vom Kameraadapter
Den BVF-55/55CE durch Ziehen des Hebels und Drücken des Knopfes abnehmen.



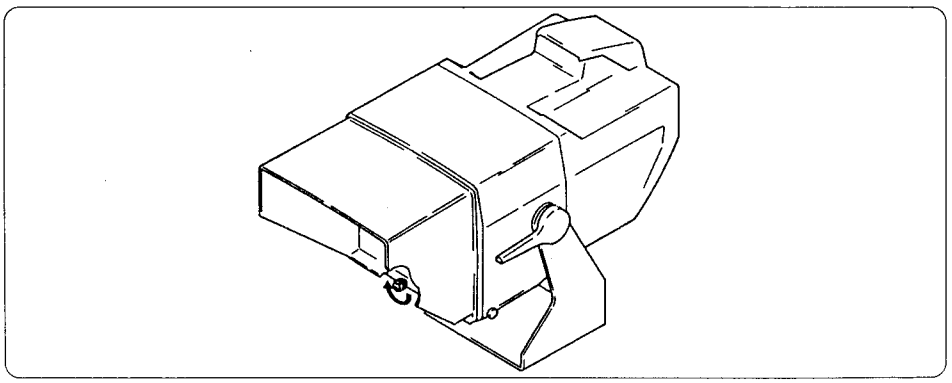
1-3-2. Anbringen der mitgelieferten Studio-Monitor-Haube oder der OB-Haube VFH-550 (Sonderzubehör)

Die Haube VFH-550 wird in gleicher Weise wie die Studio-Monitorhaube angebracht. Nachstehend ist die Anbringung der Studio-Monitorhaube beschrieben.

1 Die Haube mit ihrem oberen Teil in den Vorsprung oben auf dem BVF-55/55CE einhängen.

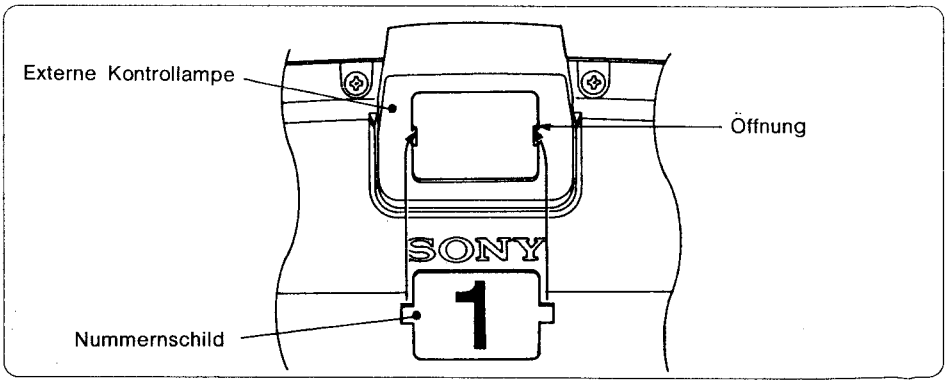


2 Zum Sichern am BVF-55/55CE die Schraube festziehen.



1-3-3. Anbringen des mitgelieferten Nummernschilds

Das Nummernschild mit seinen seitlichen Vorsprüngen in die entsprechenden Öffnungen der externen Kontrollampe einhängen.



1-4. Benutzung des BVF-55/55CE

1-4-1. Einschalten des BVF-55/55CE

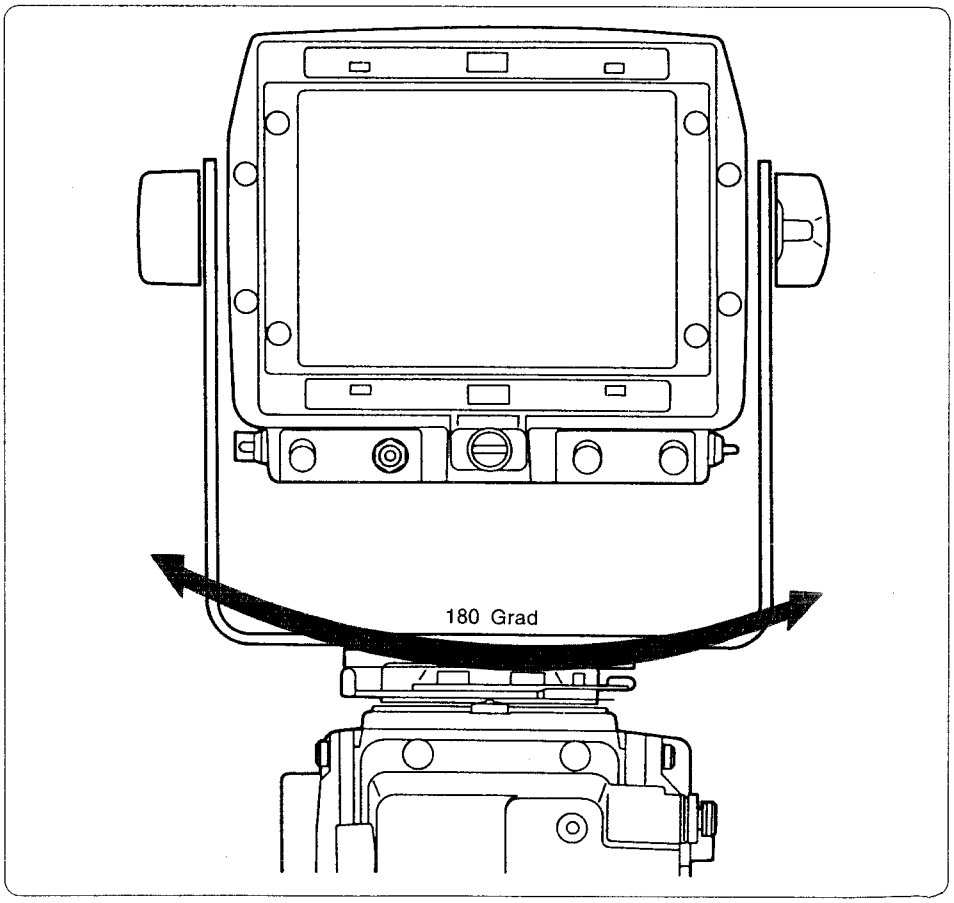
Auf Einschalten des an die Videokamera angeschlossenen Kameraadapters wird der BVF-55/55CE automatisch mit Spannung versorgt.
Einige Sekunden nach Einschalten der Kamera erscheint das Bild.

Hinweis zur Helligkeitsregelung
Wenn der BRIGHT-Regler ganz nach links gedreht ist, erscheint eventuell kein Bild im Sucher.

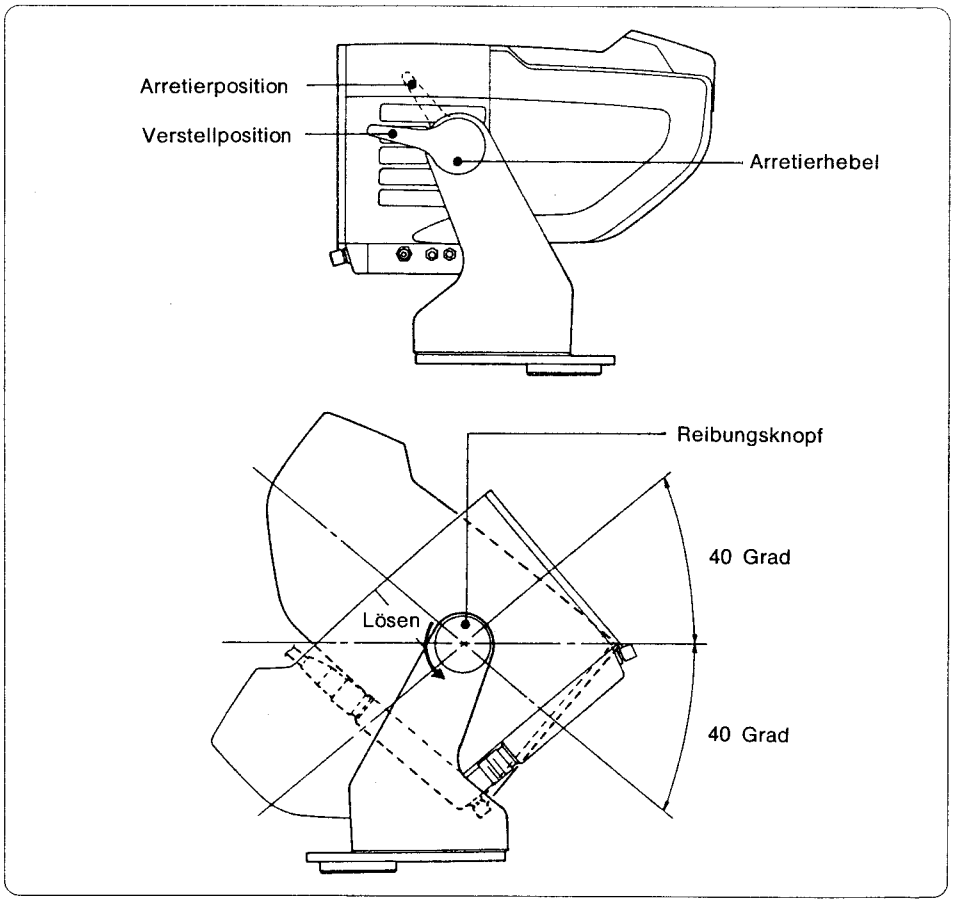
1-4-2. Ausrichten des Suchers

Richten Sie den BVF-55/55CE vor der Benutzung passend aus.

Schwenkwinkeleinstellung



Neigungswinkeleinstellung

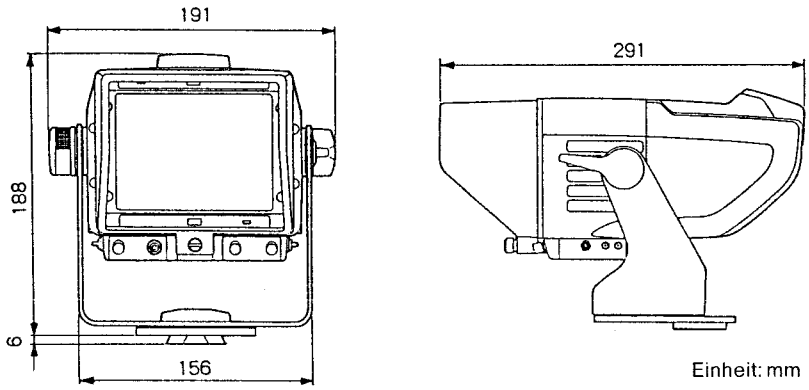


1 Den Arretierhebel in die Verstellposition bringen.
2 Mit dem Reibungsknopf den Widerstand einstellen.
3 Den Neigungswinkel einstellen.
Nach dem Einstellen des gewünschten Neigungswinkels den Arretierhebel in die Arretierposition stellen.

1-5. Technische Daten

Bildröhre	5 Zoll monochrom Bildschirmgröβe: 73×97mm (h/v)
Videosignal	BVF-55: EIA-Norm BVF-55CE: CCIR-Norm
Abtastsystem	2:1 Zeilensprung, 525 Zeilen (BVF-55), 625 Zeilen (BVF-55CE), 5% Bildverkleinerung, Horizontale Linearität: Fehler unter 3% Vertikale Linearität: Fehler unter 3%
Auflösung	Über 650 Fernsehzeilen in der Mitte Über 550 Fernsehzeilen in den Bildecken
Eingang	12pol-Anschluβ Video-Eingang: 1 Vss, Video positiv, 1 kOhm
Geometrische Verzeichnung	Weniger als 3%
Frequenzgang	−3 dB bei 10 MHz
Stromversorgung	10,5 V bis 17 V Gleichspannung, Nennwert 12V
Leistungsaufnahme	10 W
Betriebstemperatur	−10°C bis +50°C
Betriebsfeuchtigkeit	0 bis 90% Nicht kondensierend
Betriebshöhe	Bis ca 3050m
Gewicht	Sucher: ca. 1,9 kg Sucher mit Halterung: ca. 2,5 kg
Mitgeliefertes Zubehör	Gleitschuh (1) Keilschuhhalterung (1) Schrauben (1Satz) Sechskantschlüssel (1) Verbindungskabel (1) Studio-Monitorhaube (1)

Abmessungen

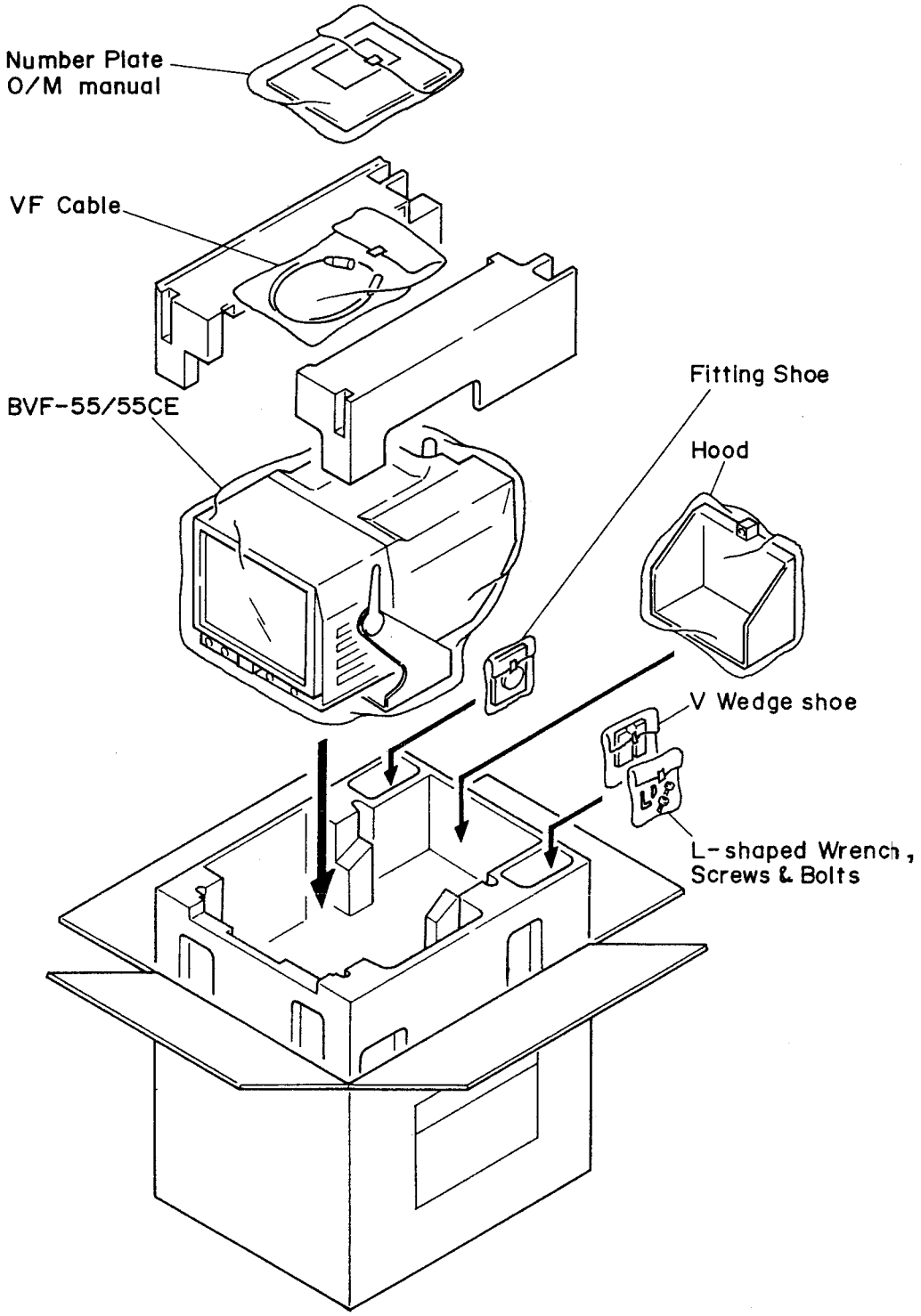


Einheit: mm

Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

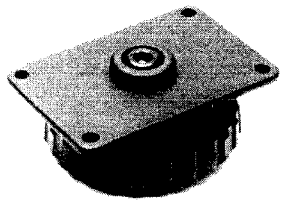
第2章
設　置

2-1. 開梱と再梱包

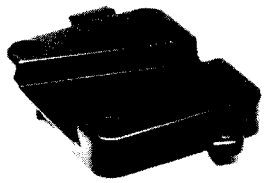


2-2. 標準付属品

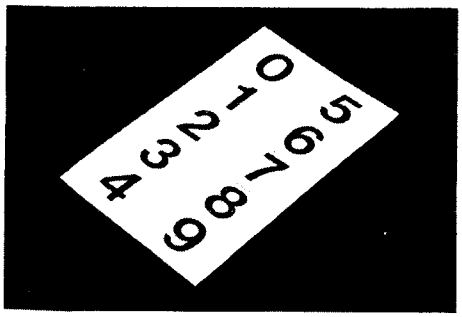
取り付けシュー：1組
BVF-55をベータカムビデオカメラに取り付ける際に使用します。



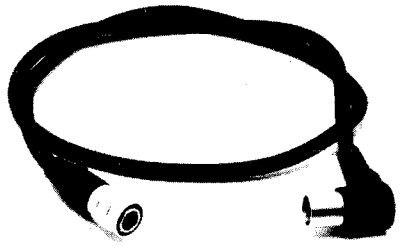
Vウェッジシュー：1組
BVF-55をカメラアダプターCA-57に取り付ける際に使用します。



ナンバープレート：1枚



20P-12Pケーブル：1本
BVF-55とベータカムビデオカメラを接続する際に使用します。



Lレンチ：1個

ネジ+B 4×8：4個
付属の取り付けシューを取り付ける際に使用します。

六角穴付きボルト 4×12：4個
付属のVウェッジシューを取り付ける際に使用します。

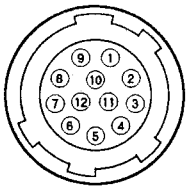
O/M マニュアル：1冊
オペレーションとメンテナンスマニュアルの合冊です。

2-3. 適合コネクター／ケーブル

2-3-1. コネクターの入出力信号

主なコネクターの入出力信号は次の通りです。

CAMERA (12P, MALE)



No	SIGNAL	SPECIFICATION	No	SIGNAL	SPECIFICATION
1	(SPARE)	No Connection	5	(BATT IND ON IN)	No Connection
2	VF VIDEO IN (X)	VS or VBS = 1.0Vp-p ± 1dB (100%) Zi = 75Ω ± 5%	6	UNREG IN	10.5 to 17.0Vdc
			7	(SPARE)	No Connection
			8	(+ 9.5V IN)	No Connection
3	VF VIDEO IN (G)	GND for VF VIDEO	9	(EXTEND IND ON IN)	No Connection
4	R TALLY IN (AUTO IND ON)	ON : 7.0 ± 0.2V (ZR = 150Ω) OFF : $0^{+0.3}_{-0}$ V Zi ≦ 1KΩ	10	(GAIN UP IND ON IN)	No Connection
			11	($\overline{\text{EIA}}$／CCIR IN)	No Connection
			12	G TALLY ON IN	ON : 2.0 ± 0.5V (ZR = 300Ω) OFF : 0 + 0.5V

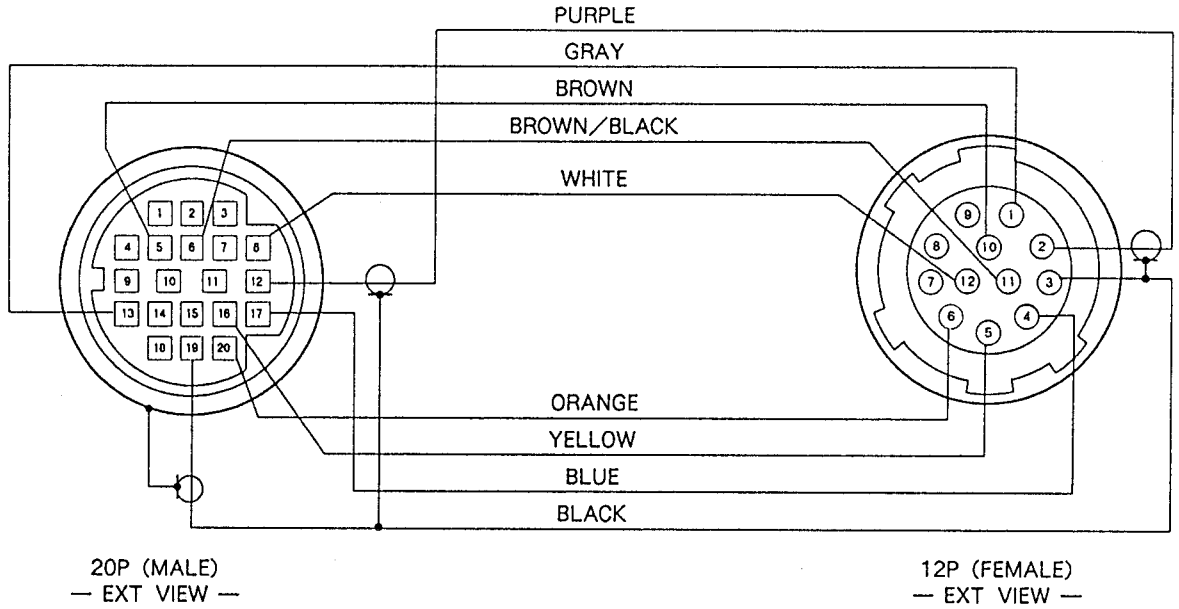
2-3-2. 接続コネクター

設置時，サービス時等において，コネクターパネル部の各種コネクターにケーブルを接続する際には，その先端に次に記すコネクターまたは同等品を使用して下さい。

コネクターの機能名称	接続するケーブル側のコネクターの部品番号および名称
CAMERA	1-563-928-11 CONNECTOR, ROUND TYPE 12P FEMALE HIROSE HR10A-10PA-12SC equivalent
	1-574-431-11 CABLE ASSY 20P-12P (supplied with BVF-55)
	1-562-356-11 CONNECTOR, ROUND TYPE 12P FEMALE HIROSE HR10-10PA-12SC equivalent
(12P, MALE)	1-558-621-21 CABLE ASSY 12P-12P

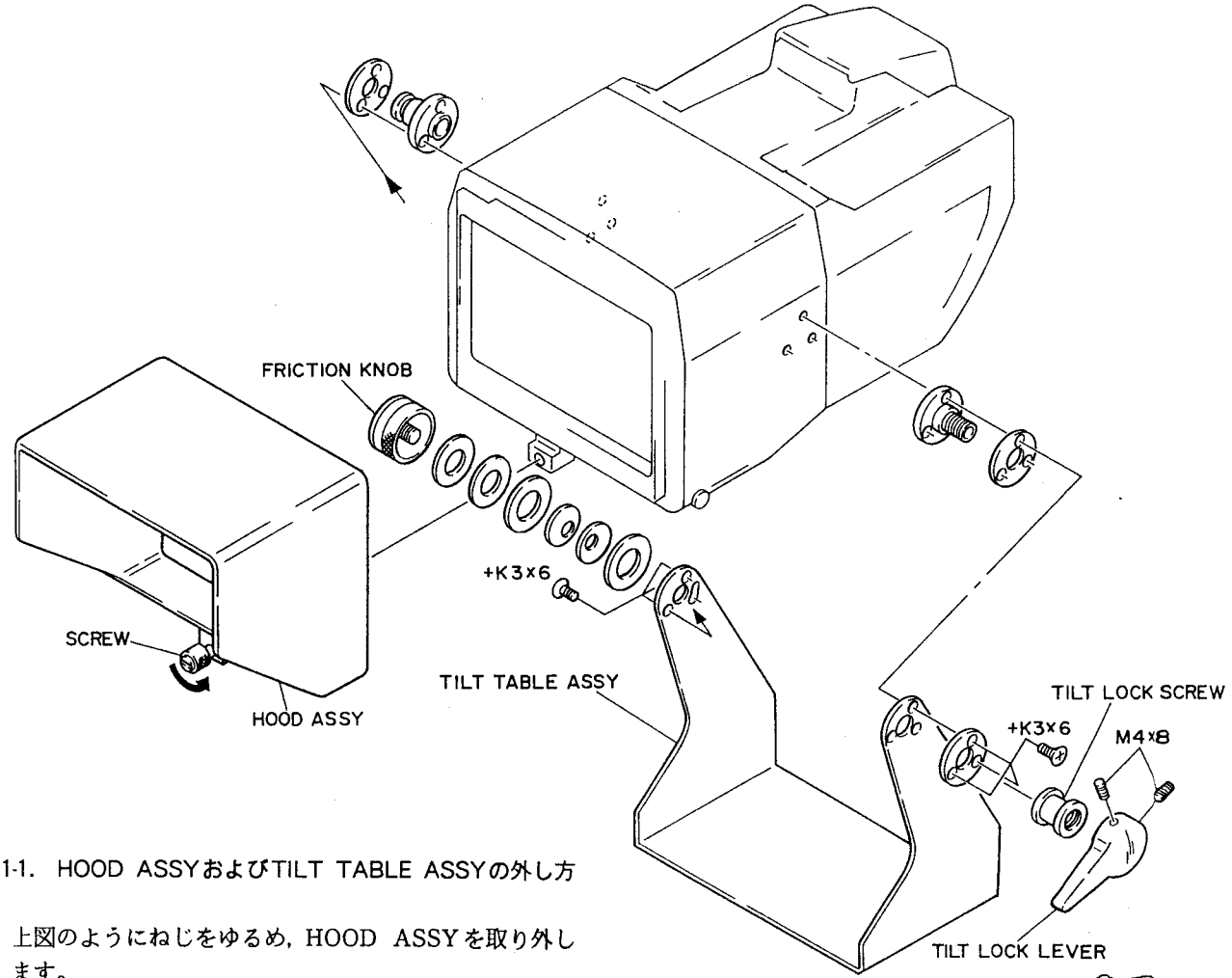
2-3-3. ケーブルの結線

20P-12P ケーブル（結線図）



第3章
サービスインフォメーション

3-1. 外装の外し方

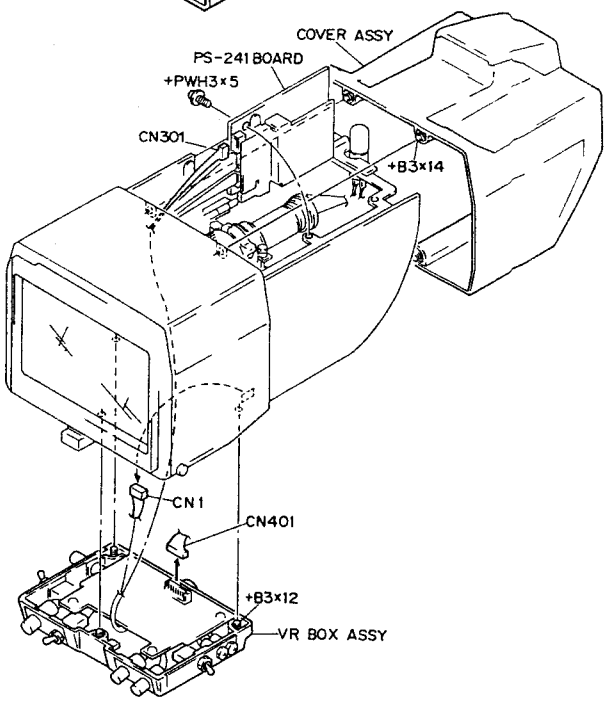


3-1-1. HOOD ASSYおよびTILT TABLE ASSYの外し方

1. 上図のようにねじをゆるめ，HOOD ASSYを取り外します。
2. ねじ（M4×8）2本を外し，TILT LOCK LEVERおよびTILT LOCK SCREWを取り外します。
3. FRICTION KNOBおよび，ねじ（+K3×6）6本を外し，TILT TABLE ASSYを取り外します。

3-1-2. COVER ASSYおよびVR BOX ASSYの外し方

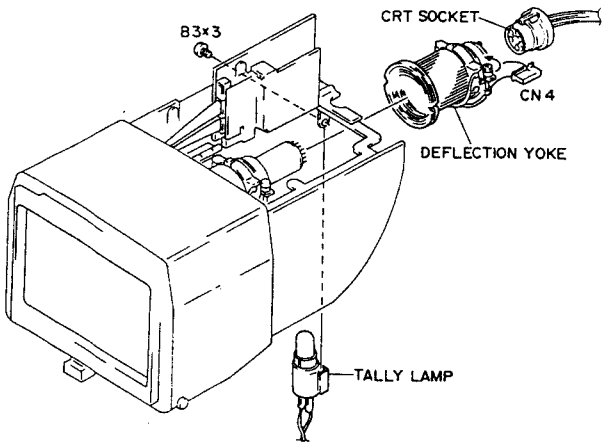
1. 右図のようにねじ（+B3×14）4本をゆるめ，COVER ASSYを取り外します。
2. ねじ（+PWH3×5）を外し，PS-241 (PD-489) BOARDを開きます。
3. コネクター（CN301）を抜きます。
4. ねじ（+B3×12）3本をゆるめ，VR BOX ASSYを取り外します。
5. コネクター（CN1，CN401）2個を抜きます。



3-2. 主要部品の交換方法

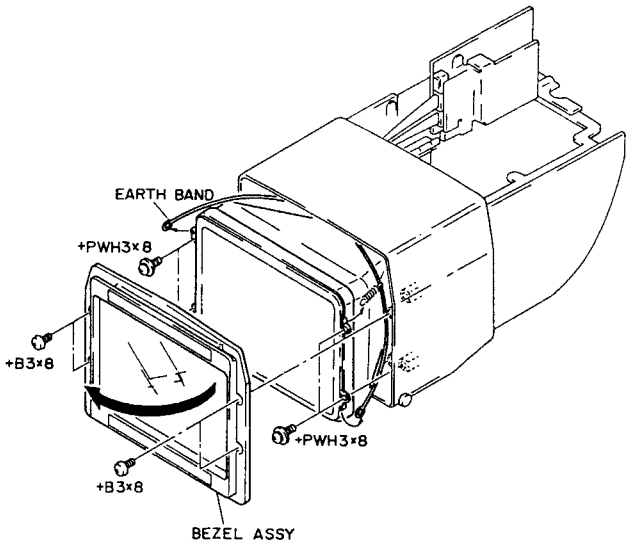
3-2-1. DEFLECTION YOKEの交換方法

1. 外装部品の外し方は，3-1項の外装の外し方を参照します。
2. ねじ（+ B3 × 5）を外し，TALLY LAMPを外します。
3. CRT SOCKETを抜き取ります。
4. DEFLECTION YOKE取り付けねじをゆるめ，コネクター（CN4）を抜いてからDEFLECTION YOKEを抜き取ります。
5. 新しいDEFLECTION YOKEの取り付けは，取り外しの逆の手順で行います。

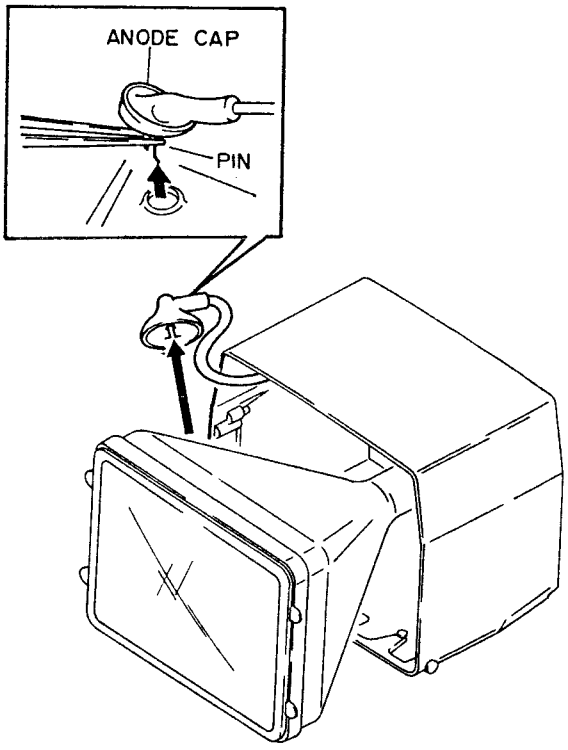


3-2-2. CRTの交換方法

1. ねじ（+ B3 × 8）4本を外して，BEZEL ASSYを矢印方に取り外します。
2. ねじ（+ PWH3 × 8）4本を外し，CRTを前方に引き出します。
3. EARTH BANDをCRTから取り外します。



4. ピンセットにてANODE PINをはさみ，ANODE CAPを外します。
5. 新しいCRTの取り付けは取り外しの逆の手順で行います。



3-3. サービス上の注意事項

3-3-1. 補修用部品注意事項

(1) 安全重要部品
回路図, 分解図, 電気部品表中, ⚠印および ▒ で囲まれた部品は, 安全性を維持するために重要な部品です。従ってこれらの部品を交換するときは必ず指定の部品と交換して下さい。

(2) 部品の共通化
ソニーから供給される部品は, セットに実装されているものと異なることがあります。これは部品の共通化, 改良等によるものです。分解図や電気部品表中には現時点での共通化された部品が記載されています。

(3) 部品の在庫
リスト中, SP欄が "S" で示されている部品は常時在庫しています。SP欄が "O" で示されている部品は交換頻度が低い部品ですので, 一般には在庫しません。そのため, 納期が長くなることがあります。

(4) コンデンサ, インダクター, 抵抗の単位
回路図, 分解図, 電気部品表中, 特に明記したものを除き, 下記の単位は省略されています。
コンデンサ : μF
インダクター : μH
抵抗 : Ω

3-3-2. 点検および保守上の注意事項

(1) ブラウン管およびそのネック部の調整器の取り扱いの際は十分注意し, ブラウン管に無理な力をかけないようにして下さい。

(2) モニタ動作中の点検は, 特に高圧回路および偏向回路の点検は高電圧, 高圧パルスが発生している部分がありますので, 感電に注意して下さい。また, プリント基板内にも高圧のラインが通っていますので, 素手や工具等で触れたりしないよう注意して下さい。

(3) ブラウン管交換または点検のため, ブラウン管に触れる場合は, 必ず電源を切ってから高圧アノードキャップを外し, アノード電極の蓄積電荷をテスタリード等により放電させ, 危険のないようにしてから作業を行って下さい。

(4) モニタを長時間使用していますと, 高圧ユニット, 高圧の加わる部品, 線材およびブラウン管の表面にほこりやごみが付着しトラブルの原因になりますので, 定期的に上記の部分, 特にアノードキャップの周囲, 高圧整流器等はクリーニングして下さい。

3-3-3. 故障診断

(1) ビューファインダの故障を調べる前に，接続しているケーブル，コネクタ等の接触を良く点検し，各入力に規定の信号，電源が供給されているかを調べて下さい。

(2) 1章取扱い操作に述べられている調整器の位置が悪いと，一見故障と思われる状態になります。
例えば，CONTRASTボリュームやBRIGHTNESSボリュームのツマミが左に回し切った位置にしておくと，画像が出なかったりします。

(3) 各基板の接続は，コネクタで行っていますので，正しい接触をしているかどうか点検して下さい。

(4) 電源安定化回路（PS-241基板）が動作不良になると，あらゆる回路の動作に影響します。従って，初めに電源電圧を点検して下さい。しかし，各基板の電源回路系が短絡状態，オープン状態にある場合も一見して電源安定化回路が故障と思われる状態になります。

(5) 故障はその症状によって一つの回路だけのこともあり，いくつかの回路にわたって原因することも考えられます。

第4章
回路説明

4-1. 映像増幅回路（VF-42基板）

CN501コネクターのVIDEO IN端子（2ピン）からの映像信号はCN1の2ピンに入力され，Q1のバッファーを介して映像増幅用と同期分離用に分岐します。
映像増幅用信号は，Q2～Q4のピーキング回路に入力されます。そこで，映像信号はCN5の5ピンからのピーキング・コントロール信号によってピーキング補正されます。
ピーキング・コントロール信号は，外部のピーキング・コントロールつまみ（◐RV502）および◐RV451／VF-45（PD-493）を調整することによって，映像信号のピーキング補正の度合いを変えています。
その後，ピーキング補正された映像信号は，Q5の反転アンプ，Q6のバッファーを通り，IC1の1ピンに入力されます。
IC1の1ピンに入力された映像信号は，まず，初段アンプにて，コントラスト・コントロール（◐RV501）によってレベル調整され，次段アンプおよびペデスタル・クランパーを通り，8ピンより出力されます。
8ピンより出力された映像信号は，Q18のバッファーを経てMARKER信号とミックスされます。その後，Q7～Q9で構成される映像出力回路で増幅され，CRTのカソード電極に供給されます。

4-2. 同期分離，水平発振，垂直発振出力回路（VF-42基板）

Q1のエミッターからの映像信号はIC2の11ピンに加わり，同期信号を分離されます。同期信号は，IC2の8ピンより出力され，積分回路（R71～R73，C48，C49）を経てIC5の8ピンに加わります。そこで垂直発振周波数がトリガされ，V期間の鋸歯状波を発生します。
IC5から出力された垂直出力信号は，その後，垂直偏向コイルを駆動します。
IC5周辺には，以下に示す調整ボリュームがあります。

◐RV3（V HOLD）……垂直発振周波数調整用
◐RV4（V SIZE）……垂直画面サイズ調整用
◐RV5（V LIN）……垂直リニアリティ調整用

IC2では，他に水平発振出力回路があり，H同期信号によって水平発振周波数がトリガされます。
IC2の12ピンに水平出力信号からの比較パルスが加わり，水平同期信号と位相検波し，その出力が水平発振基準電圧をコントロールすることにより，水平同期をとっています。IC2の16ピン出力の水平ドライブパルスはQ11～Q13のアンプで増幅され，Q14のゲートに加わります。Q14，C40，L6で構成された水平出力回路からの水平出力信号によって水平偏向コイルが駆動されます。◐RV1（H HOLD）は水平発振周波数を調整します。

4-3. 高圧出力回路（VF-43／44基板）

IC2の16ピンからの水平ドライブパルスは，水平偏向コイル駆動用の他に，VF-43基板にも送られ，Q201～Q203のアンプで増幅され，Q204のゲートに加わります。Q204，C204で構成された高圧出力回路からの高圧出力パルスは，T201のフライバックトランス（VF-44基板）を駆動します。
T201のフライバックトランス（VF-44基板）からは，高圧および各中，低圧，ヒーター電圧が出力されます。
高圧はCRTのアノード電圧，中圧はスクリーンおよびフォーカス電圧，低圧は映像出力回路およびBRIGHT回路（IC1／VF-42）に供給しています。また，フライバックトランスは次項に述べる高圧安定化回路によって出力電圧をコントロールされ，CRTのアノード電圧を一定に保っています。

4-4. 高圧安定化回路（VF-43基板）

T201のフライバックトランス（VF-44基板）からの高圧出力電圧の変動分をR214，◐RV201，R215で検出し，IC201の3ピンに入力します。
3ピン入力信号はIC201内部にてインピーダンス変換されます。その後，IC201-5ピン入力の基準電圧と比較され，その差分を増幅されて7ピンより出力します。
7ピン出力信号はQ206，Q205を制御します。
Q205のコレクターからT201のフライバックトランスへ供給される直流電圧をQ206が制御することによってフライバックトランス（VF-44基板）の高圧出力電圧を一定に保っています。
◐RV201は高圧出力レベル調整用です。

4-5. ブランキング回路（VF-42基板）

ブランキングパルスはR85，C60にて水平パルス，C61，R86，R87，D12にて垂直パルスを加えることによって得られます。そのパルスはQ17にて増幅し，R90，C62を経てブライトネスコントロール（◐RV503）からの電圧に重畳し，CRTの第1グリッドへ供給しています。

4-6. スイッチング電源回路（PS-241 基板）

10.5V～17Vdcの入力電圧をチョッパーレギュレーター回路に入力することにより＋9.5Vdcの定電圧を得ています。IC301では，Q303のチョッパー出力電圧を2ピンにフィードバックし，1ピン入力の基準DC電圧と比較することによって，発振パルス幅をコントロールしています。
その比較出力はQ301，Q302を経てQ303の入力インピーダンスを制御します。
Q303出力電圧は下記の整流器で整流されて＋9.5VのDC電圧を出力します。

D302，L302，C307およびL303，
C308，L304，C316，C309

4-7. タリーランプ回路（PS-241 基板）

Q308，IC302はPL501のタリーランプ供給電圧可変回路であり，DIMMERコントロール（◐RV506）によって出力電圧レベルがコントロールされます。（DC＋12V～7V）コントロールされた出力電圧レベルによってタリーランプの輝度を可変します。
Q305～Q307はPL501のタリーランプ点灯／消灯をスイッチングしています。S501のTALLYスイッチをON側に設定すると，Q306はOFFになり，Q305の出力電圧がQ307のベースに印加され，Q307がONします。それによりPL501からの電流が流れ，タリーランプが点灯します。
CN501コネクターのR TALLY IN端子（4ピン）からのR TALLY CONT信号はCN301の3ピンを介してQ304のベースに印加されます。そのR TALLY CONT信号がHIGHレベルのときは，Q304がONしてR TALLYのLED（D502，D505／LP-59基板）からの電流が流れ，R TALLYのLEDが点灯します。
CN501コネクターのG TALLY IN端子（12ピン）からのG TALLY CONT信号はCN301の6ピンを介してQ309のベースに印加されます。そのG TALLY CONT信号がHIGHレベルのときは，Q309がONしてG TALLYのLED（D501，D504／LP-59基板）からの電流が流れ，G TALLYのLEDが点灯します。

4-8. MARKERジェネレーター（VF-45 基板）

BVF-55は，被写体の中心位置を決めるために使われるセンターマーカーおよび被写体構成を決めるためのセーフティゾーン（撮像画面の90％の範囲を示す枠）をビューファインダー画面に表示する機能を持っています。
センターマーカー信号およびセーフティゾーン信号は，VF-42基板からの水平同期パルスおよび垂直同期パルスをQ401～Q404，IC401～IC414で構成されるMARKERジェネレーターに入力することにより生成されます。
このMARKERジェネレーターは大別して次の4つに分かれます。

- H CENTER MARKERジェネレーター
- H SAFETY ZONEジェネレーター
- V CENTER MARKERジェネレーター
- V SAFETY ZONEジェネレーター

上記の4つのジェネレーターから生成されたそれぞれの信号は最終的にはミックスされて，MARKER信号としてVF-42基板に送られ，映像信号に重畳されます。
そのMARKER信号は，◐RV504（H CENT）にてHセンタリングを，◐RV505（V CENT）にてVセンタリングを調整されます。
MARKER信号のうち，SAFETY ZONE信号はS401のSAFETY ZONE ON／OFFスイッチによってCENTER MARKER信号とミックスするか否かを切り換えられます。また，S502のMARKER ON／OFFスイッチによって，映像信号に重畳するか否かを切り換えられます。
なお，SAFETY ZONE信号は下記の調整ボリュームによって微調整されます。

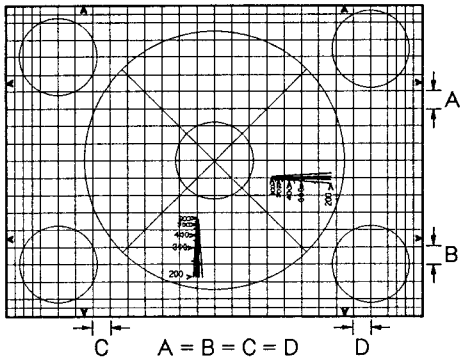
- ◐RV401…SAFETY ZONE H位置調整
- ◐RV402…SAFETY ZONE Hサイズ調整
- ◐RV405…SAFETY ZONE V位置調整

5-2-8. リニアリティ調整

注意事項：この調整と5-2-7.画面サイズ調整は互いに影響し合うので、両方の規格が満足するまで、繰り返し調整を行って下さい。
被写体： レジストレーションチャート
測定器： 波形モニター
測定点： ビューファインダー画面
調整箇所：◐L5（H LIN）／VF-42（PD-490）
◐RV5（V LIN）／VF-42（PD-490）

調整手順

1. レジストレーションチャートを撮像し、チャート画枠とモニター画面のアンダースキャン画枠をレンズズームで一致させます。
2. カメラのVBS OUT端子のビデオレベルが100±2 IREになるようにレンズ絞りを調整します。
3. ビューファインダー画面において、水平方向および垂直方向それぞれの格子間隔が均一になるように◐L5と◐RV5を交互に調整します。



5-2-9. ブライト調整

測定点： ビューファインダー画面
準備： CONTRASTつまみ／ビューファインダー
→反時計方向一杯○
BRIGHTつまみ／ビューファインダー
→“◐”（マークが9時の位置）
調整箇所：◐RV6／VF-42（PD-490）

調整手順

- ビューファインダー画面が消える直後になるように◐RV6を調整します。

5-2-10. フォーカス調整

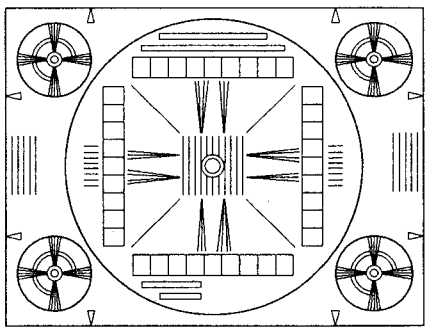
被写体： 解像度チャート
測定器： 波形モニター
準備：
- CONTRASTつまみ／ビューファインダー
→時計方向一杯○

測定点： ビューファインダー画面
調整箇所：◐RV7（FOCUS）／VF-42（PD-490）

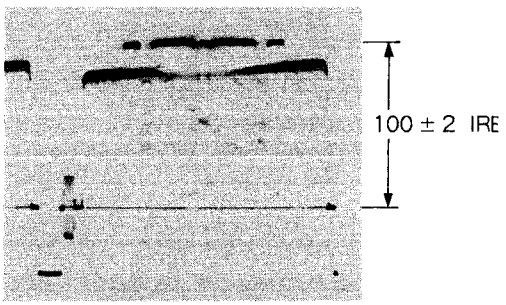
調整手順

1. 解像度チャートを撮像し、チャート画枠とモニター画面のアンダースキャン画枠をレンズズームで一致させます。

モニター画面（アンダースキャン）



2. カメラのVBS OUT端子のビデオレベルが100± 2 IREになるようにレンズ絞りを調整します。



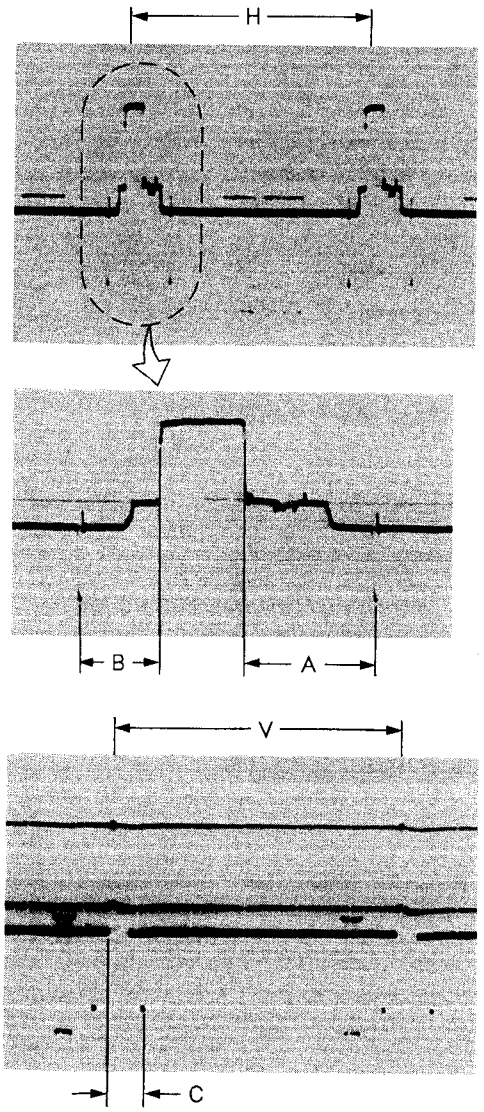
3. ビューファインダー画面のフォーカスが最良になるように◐RV7を調整します。

5-2-11. SAFETY ZONE調整

準備：
- V BLKGスイッチ／カメラ →20H
- S401 (SAFETY ZONE ON／OFF)
  ／VF-45 (PD-493) →ON
- MARKERスイッチ／ビューファインダー →ON
- ◐RV401
  ◐RV402
  ◐RV405
  ／VF-45 (PD-493)
  反時計方向一杯○

測定点：TP3 (GND：シャーシ) ／VF-42 (PD-490)

規格： A = 7.3 ± 0.1 μs (◐RV401)
B = 4.1 ± 0.1 μs (◐RV402)
C = 32 (2.03ms) ± 1H
295 (18.75ms) ± 1H
} ◐RV405

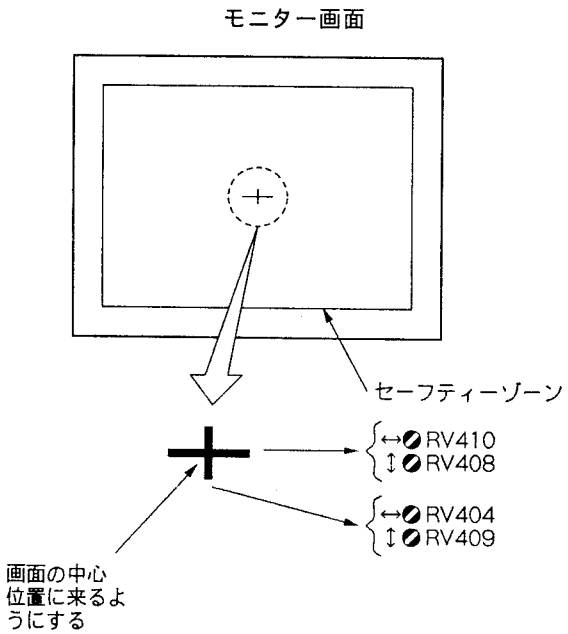


5-2-12. センターマーカー調整

準備：
- MARKERスイッチ／ビューファインダー →ON
- H CENTつまみ／ビューファインダー
  →メカニカルセンター
- V CENTつまみ／ビューファインダー
  →メカニカルセンター

測定点： ビューファインダー画面

調整手順
1. ◐RV404／VF-45 (PD-493) でセンターマーカーの縦線の水平位置を画面の中心位置に合わせます。
2. ◐RV410／VF-45 (PD-493) でセンターマーカーの横線の水平位置を画面の中心位置に合わせます。
3. ◐RV408／VF-45 (PD-493) でセンターマーカーの横線の垂直位置を画面の中心位置に合わせます。
4. ◐RV409／VF-45 (PD-493) でセンターマーカーの縦線の垂直位置を画面の中心位置に合わせます。

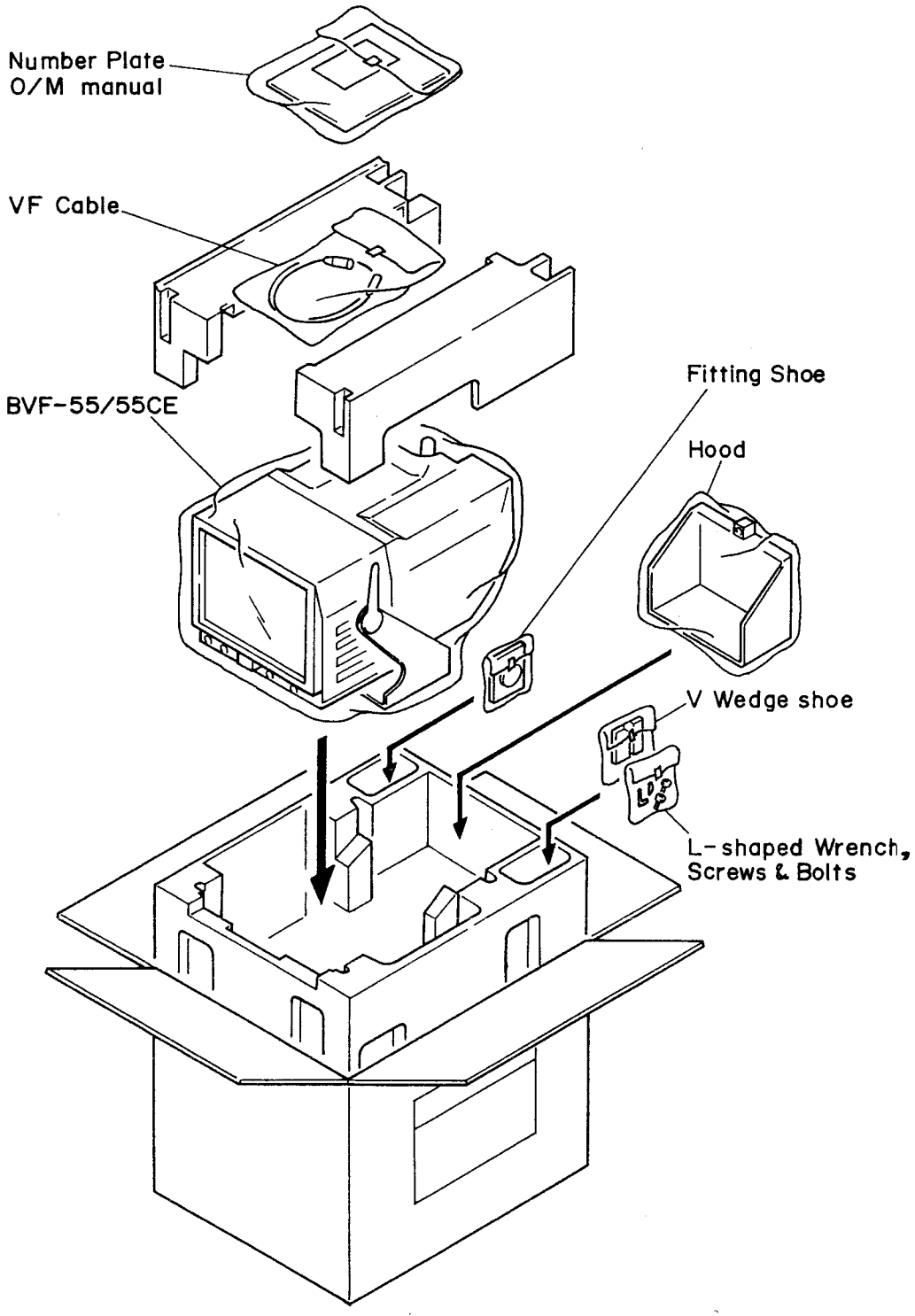


5-2-13. ピーキング調整

調整箇所：◐RV451／VF-45 (PD-493)
調整： ビューファインダー画面を見ながら適当なピーキングレベルになるように◐RV451を調整します。
(工場出荷時は時計方向一杯○になっています。)

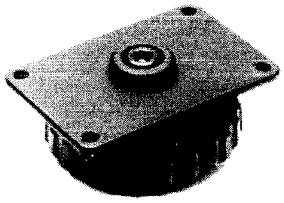
SECTION 2
INSTALLATION

2-1. UNPACKING AND REPACKING

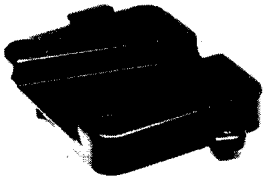


2-2. SUPPLIED ACCESSORY

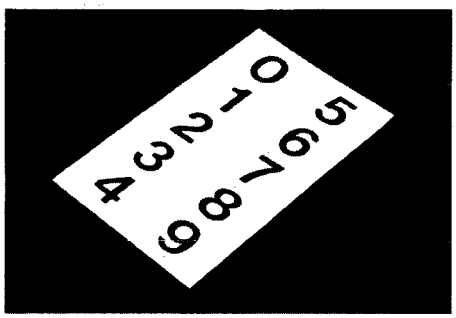
Fitting Shoe: ×1
Used for installation of the BVF-55/55CE on a BETACAM video camera.



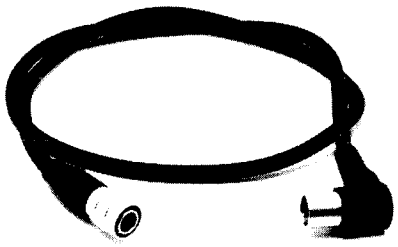
V Wedge Shoe: ×1
Used for installation of the BVF-55/55CE on a CA-57/57P camera adaptor.



Number Plate: ×1



Cable 20P-12P: ×1
Used for connection between the BVF-55/55CE and BETACAM video camera.



L Wrench: ×1

Screw + B 4×8: ×4
Used for installation of supplied fitting shoe.

Hexagon Socket Bolt 4×12: ×4
Used for installation of supplied V wedge shoe.

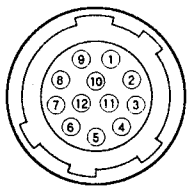
O/M manual: ×1

2-3. CONNECTORS/CABLE

2-3-1. Connector Input/Output Signals

The main connector input/output signals are as follows. :

CAMERA (12P, MALE)



No	SIGNAL	SPECIFICATION	No	SIGNAL	SPECIFICATION
1	(SPARE)	No Connection	5	(BATT IND ON IN)	No Connection
2	VF VIDEO IN (X)	VS or VBS = 1.0Vp-p ± 1dB (100%) Zi = 75Ω ± 5%	6	UNREG IN	10.5 to 17.0Vdc
			7	(SPARE)	No Connection
			8	(+ 9.5V IN)	No Connection
3	VF VIDEO IN (G)	GND for VF VIDEO	9	(EXTEND IND ON IN)	No Connection
4	R TALLY IN (AUTO IND ON)	ON : 7.0 ± 0.2V (ZR = 150Ω) OFF : $0^{+0.3}_{-0}$V Zi ≦ 1KΩ	10	(GAIN UP IND ON IN)	No Connection
			11	($\overline{\text{EIA}}$/CCIR IN)	No Connection
			12	G TALLY ON IN	ON : 2.0 ± 0.5V (ZR = 300Ω) OFF : 0 + 0.5V

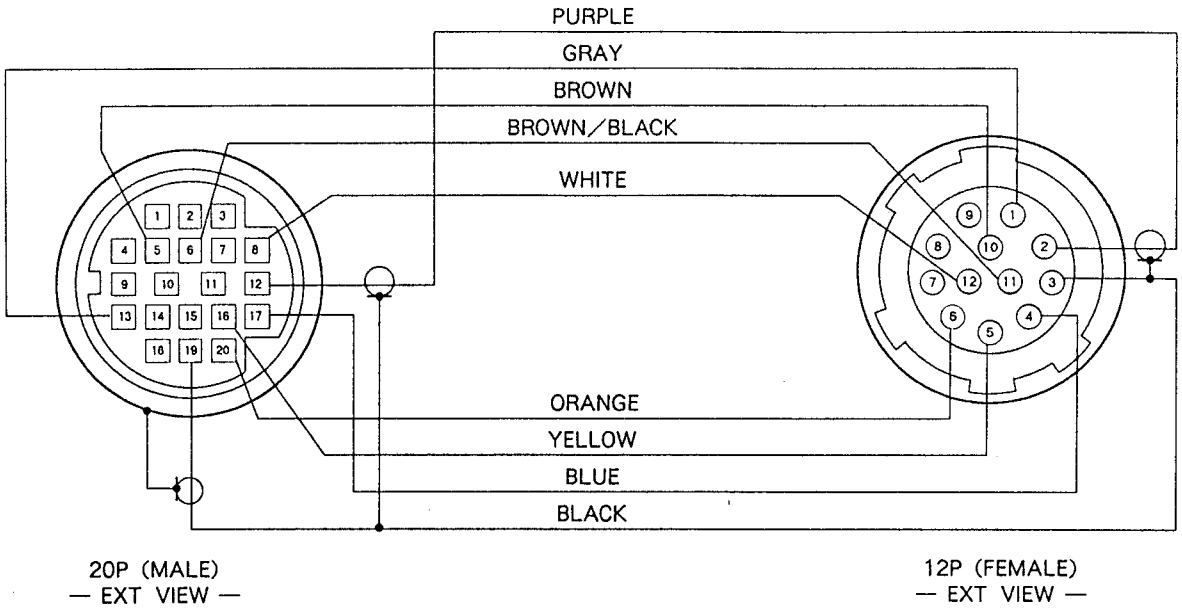
2-3-2. Connector

Connections made with the connector panels during installation or service, should be made with the connectors/complete cable assemblies specified in the following list, or equivalent parts.

Connector function	Parts No. and name of connector with cable
CAMERA	1-563-928-11 CONNECTOR, ROUND TYPE 12P FEMALE HIROSE HR10A-10PA-12SC equivalent
	1-574-431-11 CABLE ASSY 20P-12P (supplied with BVF-55/55CE)
	1-562-356-11 CONNECTOR, ROUND TYPE 12P FEMALE HIROSE HR10-10PA-12SC equivalent
(12P, MALE)	1-558-621-21 CABLE ASSY 12P-12P

2-3-3. Cable wiring

20P-12P Cable (wiring diagram)

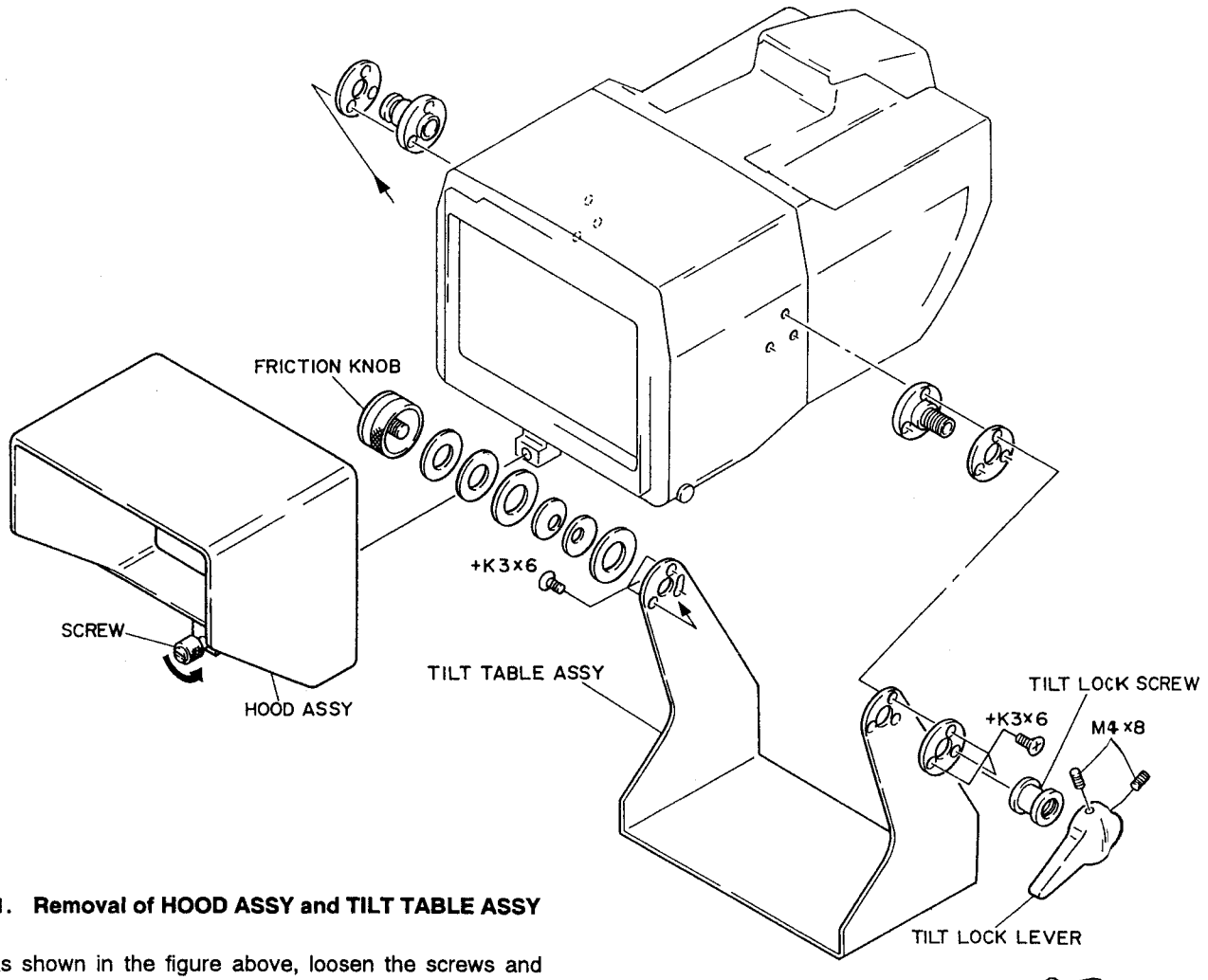


20P (MALE)
— EXT VIEW —

12P (FEMALE)
— EXT VIEW —

SECTION 3
SERVICE INFORMATION

3-1. REMOVAL OF CABINET

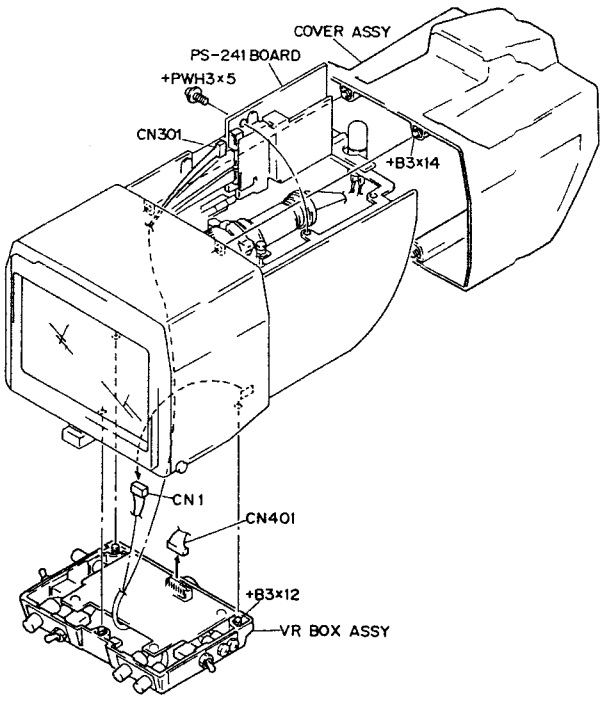


3-1-1. Removal of HOOD ASSY and TILT TABLE ASSY

1. As shown in the figure above, loosen the screws and remove the HOOD ASSY.
2. Remove the two screws (M4×8) and remove the TILT LOCK LEVER and the TILT LOCK SCREW.
3. Remove the FRICTION KNOB and the six screws (+K3×6), then remove the TILT TABLE ASSY.

3-1-2. Removal of COVER ASSY and VR BOX ASSY

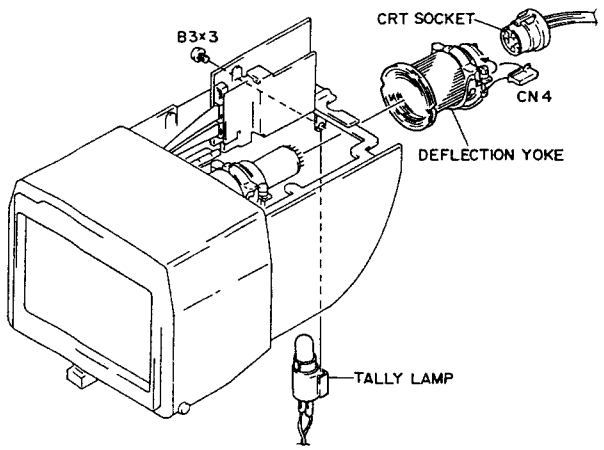
1. As shown in the figure right, loosen the four screws (+B3×14) and remove the COVER ASSY.
2. Remove the screw (+PWH3×5) and open the PS-241 (PD-489) board.
3. Disconnect the connector CN301.
4. Loosen the three screws (+B3×12) and remove the VR BOX ASSY.
5. Disconnect the two connectors CN1 and CN401.



3-2. REPLACEMENT OF MAIN PARTS

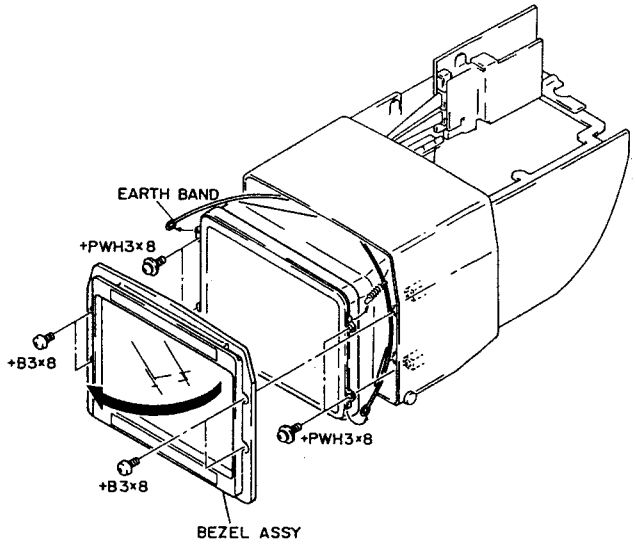
3-2-1. Replacement of DEFLECTION YOKE

1. As for removal of cabinet, refer to section 3-1.
2. Remove the screw (+B3×5) and remove the TALLY LAMP.
3. Disconnect the CTR SOCKET.
4. Loosen the DEFLECTION YOKE fixing screw, disconnect the connector CN4 and remove the DEFLECTION YOKE.
5. Install the new DEFLECTION YOKE in the reverse order of removal.

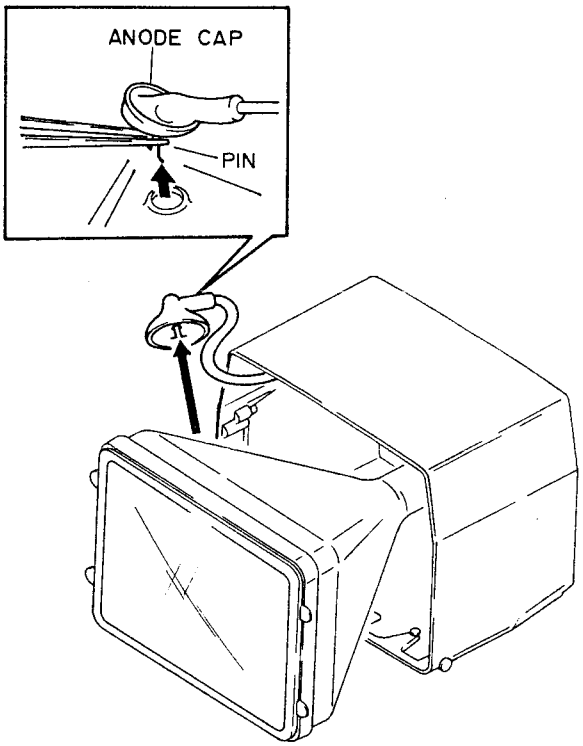


3-2-2. Replacement of CRT

1. Remove the four screws (+B3×8) and remove the BEZEL ASSY in the arrow direction.
2. Remove the four screws (+PWH3×8) and pull out the CRT.
3. Remove the EARTH BAND from the CRT.



4. Disconnect the CRT by holding the ANODE PIN with tweezers.
5. Install the new CRT in the reverse order of removal.



3-3. PRECAUTIONS ON SERVICING

3-3-1. Precaution on Replacement Parts

1. Safety Related Components Warning
   Components identified by shading marked and ⚠ marked on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony Parts whose part numbers appear as shown in this manual or in Service bulletins and service manual supplement published by Sony.

2. Standardization of Parts
   Repair parts supplied from Sony Parts Center may not be always identical with the part which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts". This manual's exploded views and electrical spare parts list are indicating the parts number of "the standardization genuine parts at present".

3. Stocked of Parts
   The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Order for parts marked with "O" will be processed, but allow for additional delivery time.

4. Units of Capacitors, Inductors, and Resistors
   The following units are omitted in the schematic diagrams, exploded views, and electrical parts lists unless otherwise specified;
   Capacitor : μF
   Inductor : μH
   Resistor : Ω

3-3-2. Precaution on Maintenance

1. Handle the CRT body and the controls on the neck of the CRT with utmost care and do not apply excessive force to the CRT.

2. High voltage and high voltage pulse exist on the high voltage and deflection circuits. Take utmost care when checking the unit while it is operating; especially high voltage circuit and deflection circuit. High voltage lines are installed on the printed board. Do not touch the printed board with bare hand or tools.

3. Before touching the CRT for checking purpose or replacing it, cut off the power, remove the high voltage anode cap and discharge the accumulated electricity on the anode to the ground using circuit taster lead, etc.
   Disconnect the power cord from the AC power source to prevent possible danger caused by accidental turning on the power.

4. Dust or dirt accumulated on the unit may cause unforeseen trouble. Periodically check and clean wiring subjected to high voltage, and CRT face. Clean especially around anode cap and the high voltage rectifier.

3-3-3. Trouble shooting

1. First, check cables, connectors and contacts for loosening and disconnection, and signal input and power supply conditions before servicing the viewfinder.

2. Next, check the position of the controls.
   If controls are not set at appropriate position, no picture may appear; for example, if CONTRAST control and BRIGHTNESS control are set at fully counterclockwise position, no picture is produced.

3. Be sure to check if each board is connected by the connectors properly.

4. First, check the power supply voltage. If the regulator circuit (PS-241 board) is in malfunction, other circuits do not work properly. Also, when the power supply on each board is short or open.

5. Trouble may concern either a signal or plural circuits.

3-3-4. Modification of VF-42

The VF-42 (PD-490) board supplied from the Sony parts center (Sony Parts No. A-7515-266-A) has been adjusted for the NTSC model.
Therefore, when installing a new VF-42 board in the BVF-55CE (PAL model), the following modification is required.

1. Unsolder the resistor R109 (address: E-2/component side) from "NTSC" position.
2. Resolder it to "PAL" position.

After the installation, be sure to perform the adjustment referring to Section 4.

3-3-5. Modification of VF-45

The VF-45 (PD-493) board supplied from the Sony parts center (Sony Parts No. A-7515-268-A) has been adjusted for the NTSC model.
Therefore, when installing a new VF-45 board in the BVF-55CE (PAL model), the following modification is required.

1. Unsolder the following jumper wires.
   JW401 through JW404

2. Short the followings.
   JW405 through JW407

SECTION 4
CIRCUIT DESCRIPTION

4-1. VIDEO AMPLIFICATION CIRCUIT (VF-42 BOARD)

The video signal at the VIDEO IN terminal (pin 2) of the connector CN501 is input to the pin 2 of CN1.
It branches into the video amplification and the SYNC saparation channels via the buffer Q1.
The video amplification signal is input to the peaking circuit of Q2 through Q4.
The video signal is peak-corrected by the peaking control signal at the pin 5 of CN5. The peaking control signal controls the peaking correction by adjusting the external peaking control knob (⊘ RV502) and ⊘ RV451 on the VF-45 board (PD-493).
Then the peak-corrected video signal is sent to the pin 1 of IC1 through the inverter amplifier Q5 and the buffer Q6.
The video signal at the pin 1 of IC1 is adjusted in level by the contrast control (⊘ RV501) at the first amplifier and is then output from pin 8 via the second amplifier and the pedestal clamper.
The video signal output from pin 8 goes through the buffer Q18 and is mixed with the MARKER signal.
Then it is amplified by the video output circuit consisting of the Q7 through Q9 and is supplied to the cathode electrode of the CRT.

4-2. SYNC SEPARATION/HORIZONTAL OSCILLATION/VERTICAL OSCILLATION OUTPUT CIRCUIT (VF-42 BOARD)

The video signal from the emitter of Q1 is added to the pin 11 of IC2 to separate the SYNC signal.
The SYNC signal is output from the pin 8 of IC2 and is then added to the pin 8 of IC5 via the SYNC integration circuit consisting of the R71 through R73, C48 and C49, where the vertical oscillation frequency is triggered and the sawtooth waveform of V period is generated.
Then the vertical output pulse from the IC5 drives the vertical deflection coil.
The following variable resistors are mounted around the IC5.

⊘ RV3 (V HOLD) ····for vertical oscillation frequency adjustment
⊘ RV4 (V SIZE) ·····for vertical frame size adjustment
⊘ RV5 (V LIN) ·····for vertical linearity adjustment

The IC2 provides another horizontal oscillation output circuit, where the horizontal oscillation frequency is triggered by the SYNC separation output.
The comparison pulse from the horizontal output signal is added to the pin 12 of IC2 and is phase-detected with the horizontal SYNC signal.
The output controls the horizontal oscillation reference voltage. As a resolt, the horizontal synchronization is performed.
The horizontal driving pulse output from the pin 16 of IC2 is amplified by the amplifiers Q11 through Q13 and is then added to the gate of Q14.
The horizontal output signal at the horizontal output circuit consisting of the Q14, C40 and L6 drives the horizontal deflection coil.
⊘ RV1 (H HOLD) adjusts the horizontal oscillation frequency.

4-3. HIGH-VOLTAGE OUTPUT CIRCUIT (VF-43/44 BOARD)

The horizontal driving pulse output from the pin 16 of IC2 is sent to the VF-43 board as well as for the horizontal deflection coil drive. It is amplified by the amplifiers Q201 through Q203, and is then added to the gate of the Q204.
The high-voltage output pulse at the high-voltage output circuit consisting of the Q204 and C204 drives the T201 flyback transformer on the VF-44 board.
The T201 flyback transformer outputs the high voltage, medium voltage, low voltage and heater voltage respectively. The high voltage is supplied to the anode voltage of the CRT, and the medium voltage is to the screen and the focus voltage and the low voltage is to the video output circuit and the BLIGHT circuit (IC1/VF-42).
The output voltage of the flyback transformer is controlled by the high-voltage stabillized circuit described below to maintain the anode voltage of the CRT constantly.

4-4. HIGH-VOLTAGE STABILIZED CIRCUIT (VF-43 BOARD)

The variation of the high-voltage output voltage from the flyback transformer T201/VF44 board is detected by the R214, ⊘ RV201 and R215, and is input to the pin 3 of IC201. The input signal is impedance- converted inside the IC201 and is compared with the reference voltage at the pin 5. The difference is amplified and is output from the pin 7 to control the Q205 and Q206. The Q206 controls the dc voltage fed from the collector of Q205 to the T201 flyback transformer is controlled. Consequently, the constant high-voltage is output.
⊘ RV201 (HV ADJ) adjusts the high-voltage output voltage.

4-5. BLANKING CIRCUIT (VF-42 BOARD)

The blanking pulse is generated by adding the horizontal pulse at the R85 and C60, the vertical pulse at C61, R86, R87 and D12. The pulse is amplified by the Q17. And the amplified pulse is superposed on the voltage from the brightness control (⊘ RV503) via the R90 and C62 and is supplied to the first grid of the CRT.

4-6. SWITCHING POWER SUPPLY CIRCUIT (PS-241 BOARD)

The +9.5V constant voltage is generated by supplying the input voltage of 10.5Vdc through 17Vdc to the chopper regurator circuit.
The IC301 controls the oscillation pulse width by feedbacking the chopper output voltage at the Q303 to the pin 2 and comparing it with the reference input voltage at the pin 1.
This comparison output drives the Q303 after going through the Q301 and Q302. The output is then rectified by the following rectifiers to generate the dc voltage of +9.5Vdc.

D302, L302, C307, and L303
C308, L304, C316, and C309

4-7. TALLY LAMP CIRCUIT (PS-241 BOARD)

The Q308 and IC302 is a supply
voltage variable circuit for the tally lamp PL501.
The DIMMER control (⊘ RV506) controls the output voltage level. (DC+12V through 7V)
The luminance of the tally lamp is varied by the controlled output voltage level.
The Q305 through Q307 turn the tally lamp PL501 ON and OFF. Setting the TALLY switch S501 to ON, the Q306 is turned off. The output voltage at the Q305 being added to the base of the Q307, the Q307 is turned ON and the tally lamp is lit.
The R TALLY CONT signal from the R TALLY IN terminal (pin 4) of the CN501 connector is added to the base of the Q304 via the pin 3 of CN301.
When the R TALLY CONT signal is high, the Q304 is turned on and the the R TALLY LEDs (D502, D505/LP-59 board) are lit.
The G TALLY CONT signal from the G TALLY IN terminal (pin 12) of the CN501 connector is added to the base of the Q309 via the pin 6 of CN301.
When the G TALLY CONT signal is high, the Q309 is turned on and the the G TALLY LEDs (D501, D504/LP-59 board) are lit.

4-8. MARKER GENERATOR (VF-45 BOARD)

The BVF-55/55CE provides function to display the center marker and the safety zone. The center marker is used to position the center of the object. The safety zone is a frame showing 90% of the picture shot by the camera, that is used to decide the composition of the object.
The center marker signal and the safety zone signal are generated by inputting the horizontal and vertical SYNC pulses from the VF-42 board to the MARKER generators consisting of the Q401 through Q404 and IC401 through IC414.
The MARKER generators are classfied broadly into four.

- H CENTER MARKER generator
- H SAFETY ZONE generator
- V CENTER MARKER generator
- V SAFETY ZONE generator

Respective signals generated by the above four generators are lastly mixed. And the mixed signal is sent to the VF-42 board as a MARKER signal and is superposed on the video signal.
The MARKER signal is adjusted in H centering by ⊘ RV504 (H CENT) and in V centering by ⊘ RV505 (V CENT).
The SAFETY ZONE ON/OFF switch S401 switches either the SAFETY ZONE signal of MARKER signal is mixed with the CENTER MARKER signal, or not. And the MARKER ON/OFF switch S502 switches either the SAFETY ZONE signal is superposed on the video signal, or not.
The SAFETY ZONE signal is finely adjusted by the following variable resistors.

- ⊘ RV401...for SAFETY ZONE H position adjustment
- ⊘ RV402...for SAFETY ZONE H size adjustment
- ⊘ RV405...for SAFETY ZONE V position adjustment

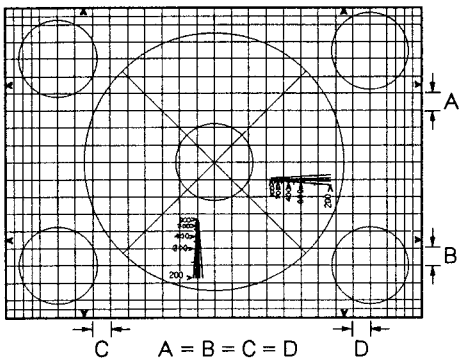
5-2-8. Linearity Adjustment

Note: This adjustment and step 5-2-7. Screen Size Adjustment affect each other, so carry out these adjustment alternately several times until the specification for each adjustment is satified.

Object: Registration chart
Equipment: Waveform monitor
Test point: Viewfinder screen
Adjusting point: ⊘ L5 (H LIN) /VF-42 (PD-490)
⊘ RV5 (V LIN) /VF-42 (PD-490)

Adjustment Procedure

1. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the white level at VBS OUT connector on the camera is 100 ± 2 IRE (CCIR: 700 ± 10 mV).
3. Adjust ⊘ L5 and ⊘ RV5 alternately so that both horizontal and vertical lattice are at equal interval.



5-2-9. Brightness Adjustment

Test point: Viewfinder screen
Preparation:

- CONTRAST knob/Viewfinder → counterclockwize ◯
- BRIGHTNESS knob/Viewfinder → "◯" (Mark at 9 o'clock)

Adjusting point: ⊘ RV6/VF-42 (PD-490)

Adjustment Procedure

- Adjust ⊘ RV6 so that the raster is just cut off.

5-2-10. Focus Adjustment

Object: Resolution chart
Equipment: Waveform monitor
Preparation:

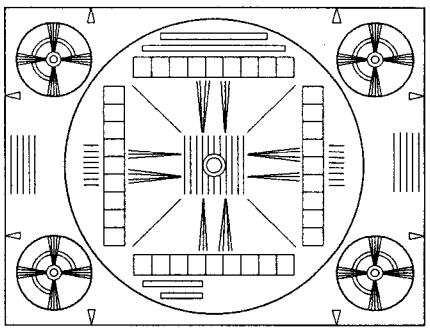
- CONTRAST knob/Viewfinder → Fully clockwize ◯

Test point: Viewfinder screen
Adjusting point: ⊘ RV7 (FOCUS) /VF-42 (PD-490)

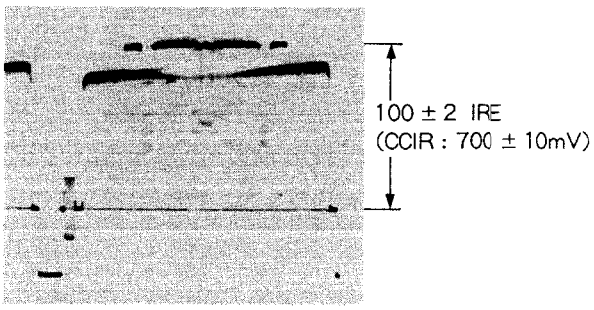
Adjustment Procedure

1. Adjust the zoom control so that the resolution chart frame touches the underscanned picture frame on the monitor.

Monitor Screen (underscanned)



2. Adjust the iris control so that the white level at VBS OUT connector on the camera is 100 ± 2 IRE (CCIR: 700 ± 10 mV).



3. Adjust ⊘ RV7 so that the picture on the viewfinder is best focused.

5-2-11. SAFETY ZONE ADJUSTMENT

Preparation:

- V BLKG switch/camera → 20H (CCIR:24H)
- S401 (SAFETY ZONE ON/OFF) /VF-45 (PD-493) → ON
- MARKER switch/viewfinder → ON
- ⊘ RV401, ⊘ RV402, ⊘ RV405 } /VF-45 (PD-493) → Fully counterclockwise ↺

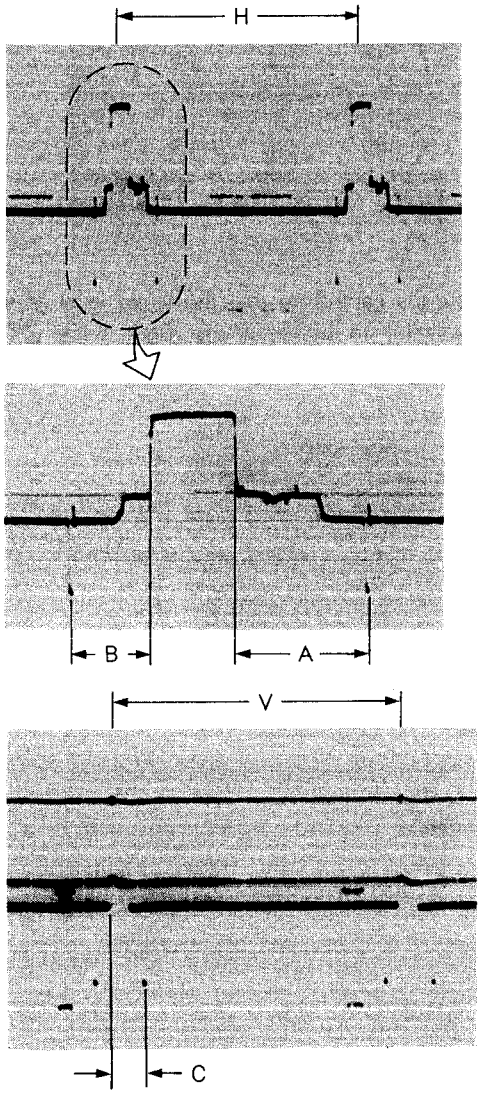
Test point: TP3 (GND:chassis) /VF-42 (PD-490)

Specification:

A=7.3 ± 0.1 µs (CCIR:12.9 ± 0.1 µs); ⊘ RV401

B=4.1 ± 0.1 µs (CCIR:4.3 ± 0.1 µs); ⊘ RV402

C=32 (2.03ms) ± 1 H
(CCIR:38 (2.43ms) ± 1 H)
295 (18.75ms) ± 1 H
(CCIR: 351 (22.5ms) ± 1H
} ⊘ RV405



5-2-12. CENTER MARKER ADJUSTMENT

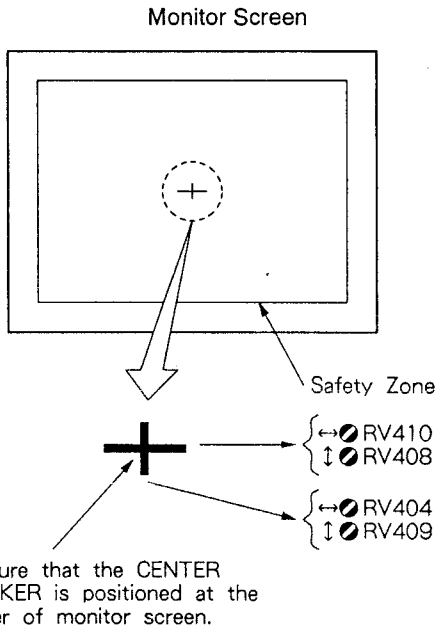
Preparation:

- S401 (SAFETY ZONE ON/OFF) /VF-45 (PD-493) → ON
- MARKER switch/Viewfinder → ON
- H CENT knob/Viewfinder → mechanical center
- V CENT knob/Viewfinder → mechanical center

Test point: Viewfinder screen

Adjustment Procedure

1. Adjust ⊘ RV404/VF-45 (PD-493) so that the vertical line of the center marker is positioned at the screen center horizontally.
2. Adjust ⊘ RV410/VF-45 (PD-493) so that the horizontal line of the center marker is positioned at the screen center horizontally.
3. Adjust ⊘ RV408/VF-45 (PD-493) so that the horizontal line of the center marker is positioned at the screen center vertically.
4. Adjust ⊘ RV409/VF-45 (PD-493) so that the vertical line of the center marker is positioned at the screen center vertically.



5-2-13. PEAKING ADJUSTMENT

Adjusting point: ⊘ RV451/VF-45 (PD-493)

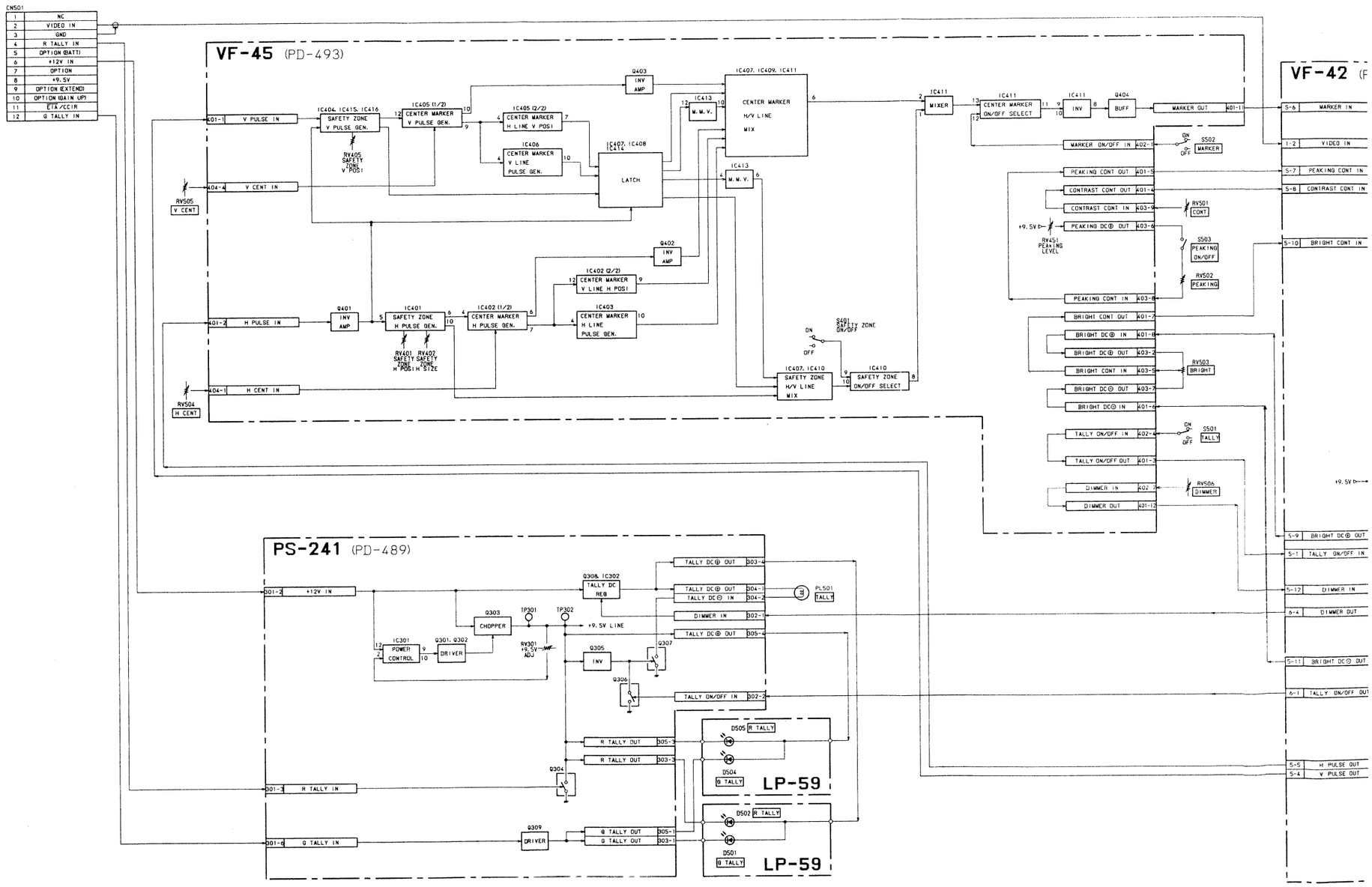
Adjustment:

- Observe the viewfinder screen and adjust ⊘ RV451 to your preferred peaking level.
  (⊘ RV451 is set fully clockwise ↺ at the factory.)

SECTION A
BLOCK DIAGRAM

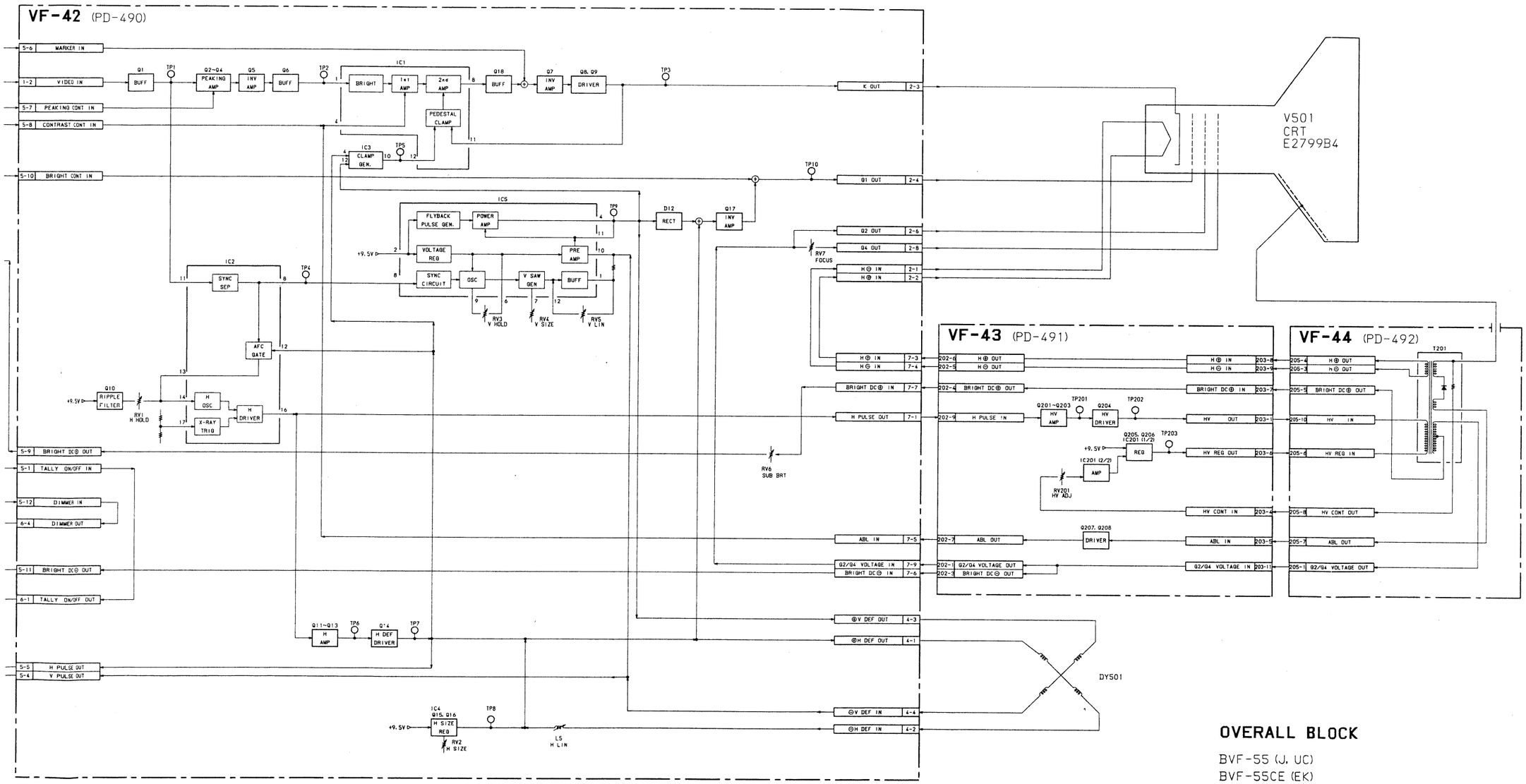
OVERALL BLOCK

Serial No. 10001 – 10100 (UC)
30001 – 30050 (J)
40001 – 40200 (EK)



A-1 (a)

A-2 (a)



OVERALL BLOCK

BVF-55 (J, UC)
BVF-55CE (EK)

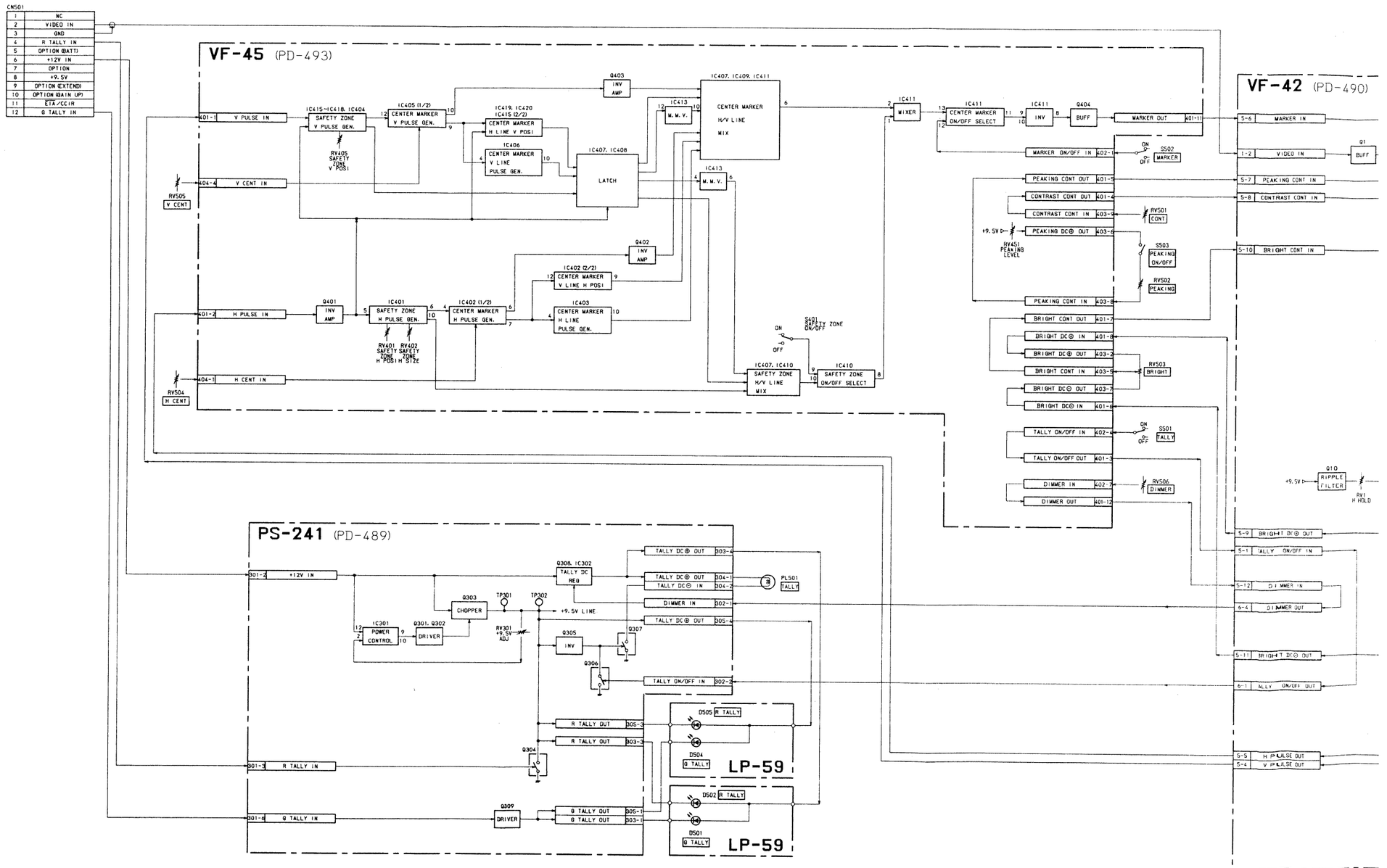
A-3 (a)

A-4 (a)

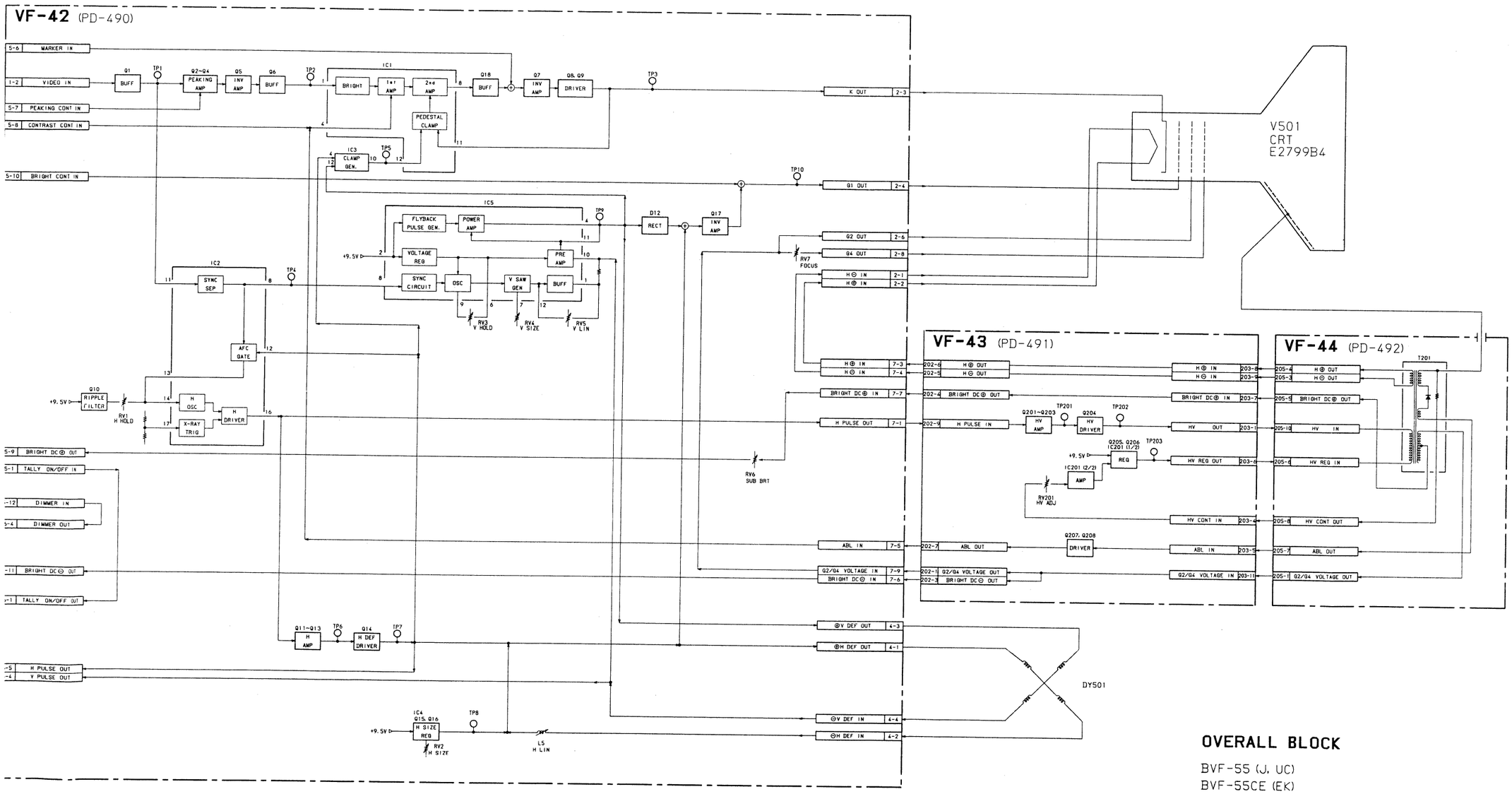
B-BVF55-OABLOCK/M#1

OVERALL BLOCK

Serial No.		
10101 –		(UC)
30051 –		(J)
40201 –		(EK)



OVERALL OVERALL



OVERALL BLOCK

BVF-55 (J, UC)
BVF-55CE (EK)

A-3 (b)

A-4 (b)

B-BVF55-0ABLOCK/M#2

1 2 3 4 5

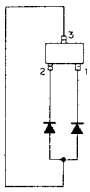
I J K L M N O

SECTION B
SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

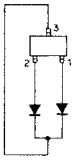
DIODE, TRANSISTOR

(SCALE 4/1)
TOP VIEW

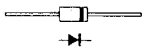


1S2836

(SCALE 4/1)
TOP VIEW

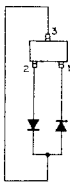


1S2838
MA152WK

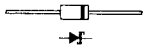


1SS119
1SS83
ERC38- ? ?

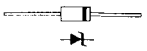
(SCALE 4/1)
TOP VIEW



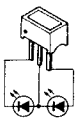
1SS123
1SS226



ERC81-004



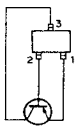
HZ ? ?A ?
HZ ?C ?L



LD-001MG ; GREEN
LD-001VR ; RED

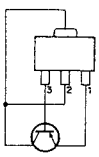
U05G
V11 ?
V19 ?

(SCALE 4/1)
TOP VIEW

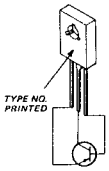


2SA1162
2SA812

(SCALE 4/1)
TOP VIEW

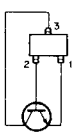


2SA1200



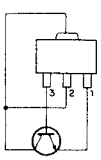
2SB772

(SCALE 4/1)
TOP VIEW

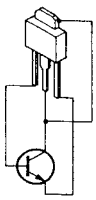


2SC1623
2SC3392-AY7

TOP VIEW (SCALE 4/1)

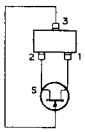


2SC2780



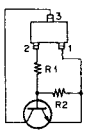
2SC3518

TOP VIEW (SCALE 4/1)

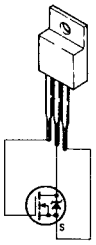


2SK160A

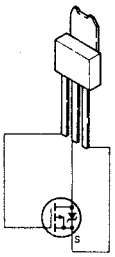
TOP VIEW (SCALE 4/1)



FA1F4M-L32
(R1 = 22K, R2 = 22K)



IRF640

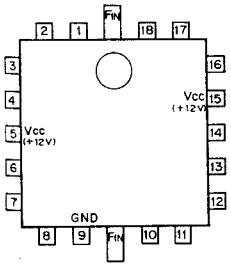


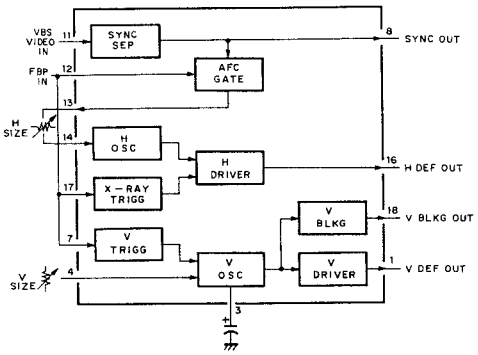
IRFU9020

HA11423MP (HITACHI) FLAT PACKAGE

TV H/V SYNC SIGNAL PROCESSOR

– TOP VIEW –

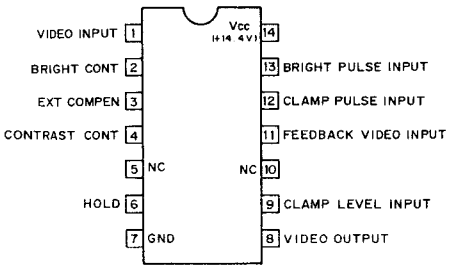


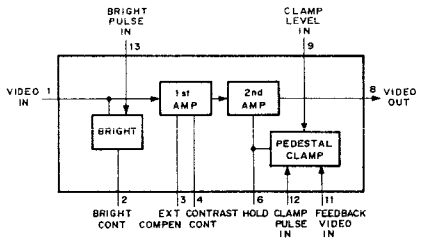


M51392P (MITSUBISHI)

VIDEO AMPLIFIER FOR DISPLAY/MONITOR

– TOP VIEW –

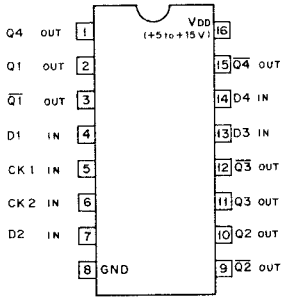


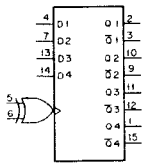


MC14042BF (MOTOROLA) FLAT PACKAGE

C-MOS D-TYPE LATCH

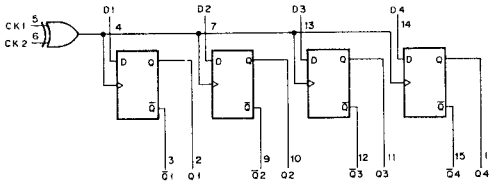
– TOP VIEW –





FUNCTION TABLE

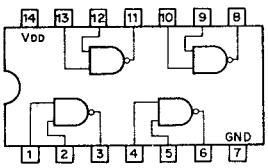
CK1	CK2	Q / Q̄
0	0	PASS DATA
0	1	LATCH DATA
1	0	LATCH DATA
1	1	PASS DATA

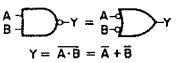


MC74HC00AF (MOTOROLA) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATE

– TOP VIEW –





A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

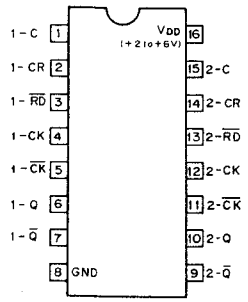
0; LOW LEVEL
1; HIGH LEVEL

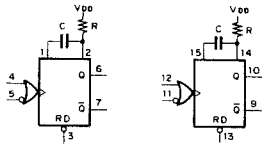
NOTE :

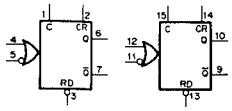
TYPE	VDD
TC74AC00P TC74AC00F	+2 to +5.5V
MC74HCT00N 74ACT00PC	+5V
OTHER TYPES	+2 to +6V

MC74HC4538F (MOTOROLA) FLAT PACKAGE
UPD74HC4538G (NEC)

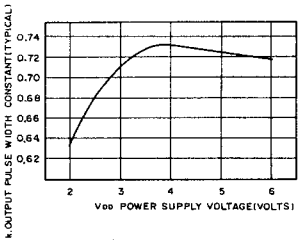
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
– TOP VIEW –



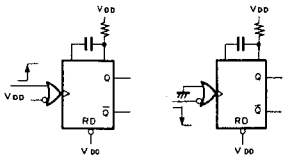




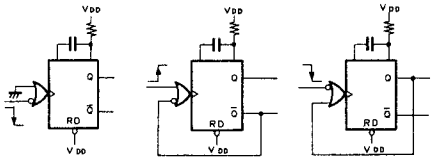
OUTPUT PULSE WIDTH = k·C·R



RETRIGGERABLE M.M.V

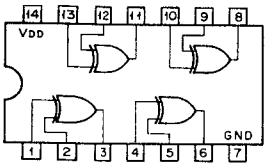


NON-RETRIGGERABLE M.M.V



MC74HC86F (MOTOROLA) FLAT PACKAGE

C-MOS EXCLUSIVE OR GATE
– TOP VIEW –



$Y = \overline{A} \cdot B + A \cdot \overline{B}$

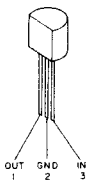
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

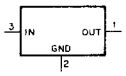
0;LOW LEVEL
1;HIGH LEVEL

TYPE	VDD
TC74AC86F	+2 to +5.5V
OTHER TYPES	+2 to +6V

RC78L05A (RAYTHEON)
TA78L005AP (TOSHIBA)

POSITIVE VOLTAGE REGULATOR (100mA)



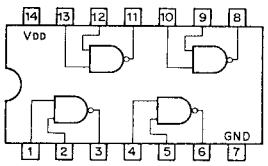


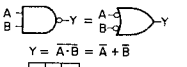
OUTPUT VOLTAGE	AN78L??	NJM78L??A	RC78L??A	TA78L???AP
+2.6V	-------	NJM78L02A	RC78L02A	----------
+4V	AN78L04	---------	--------	----------
+5V	AN78L05	NJM78L05A	RC78L05A	TA78L005AP
+6V	AN78L06	NJM78L06A	RC78L06A	TA78L006AP
+6.2V	-------	---------	--------	----------
+7V	AN78L07	---------	--------	TA78L007AP
+7.5V	-------	---------	--------	TA78L075AP
+8V	AN78L08	NJM78L08A	RC78L08A	TA78L008AP
+8.2V	-------	---------	--------	----------
+9V	AN78L09	NJM78L09A	RC78L09A	TA78L009AP
+10V	AN78L10	---------	--------	TA78L010AP
+12V	AN78L12	NJM78L12A	RC78L12A	TA78L012AP
+13.2V	-------	---------	--------	TA78L132AP
+15V	AN78L15	NJM78L15A	RC78L15A	TA78L015AP
+18V	AN78L18	NJM78L18A	RC78L18A	TA78L018AP
+20V	AN78L20	NJM78L20A	RC78L20A	TA78L020AP
+24V	AN78L24	NJM78L24A	RC78L24A	TA78L024AP

OUTPUT VOLTAGE	uA78L??ACL	uA78L??AWV	uPC78L??J
+2.6V	uA78L02ACL	uA78L26AWV	---------
+4V	----------	----------	---------
+5V	uA78L05ACL	uA78L05AWV	uPC78L05J
+6V	----------	----------	---------
+6.2V	uA78L06ACL	uA78L62AWV	---------
+7V	----------	----------	---------
+7.5V	----------	----------	---------
+8V	uA78L08ACL	----------	uPC78L08J
+8.2V	----------	uA78L82AWV	---------
+9V	uA78L09ACL	uA78L09AWV	---------
+10V	uA78L10ACL	----------	uPC78L10J
+12V	uA78L12ACL	uA78L12AWV	uPC78L12J
+13.2V	----------	----------	---------
+15V	uA78L15ACL	uA78L15AWV	uPC78L15J
+18V	----------	uA78L18AWV	---------
+20V	----------	----------	---------
+24V	----------	uA78L24AWV	---------

SN74HC00ANS (TI) FLAT PACKAGE
UPD74HC00G (NEC) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATE
– TOP VIEW –





$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

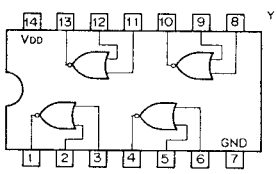
0;LOW LEVEL
1;HIGH LEVEL

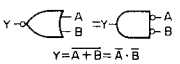
NOTE :

TYPE	VDD
TC74AC00P TC74AC00F	+2 to +5.5V
MC74HCT00N 74ACT00PC	+5V
OTHER TYPES	+2 to +6V

SN74HC02NS (TI) FLAT PACKAGE
UPD74HC02G (NEC)

C-MOS QUAD 2-INPUT NOR GATE
– TOP VIEW –





$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

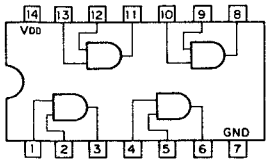
0;LOW LEVEL
1;HIGH LEVEL

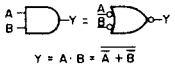
NOTE :

TYPE	VDD
TC74AC02F	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC08NS (TI) FLAT PACKAGE
UPD74HC08G (NEC)

C-MOS QUAD 2-INPUT AND GATE
– TOP VIEW –





A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

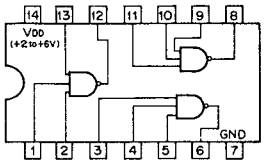
0 ; LOW LEVEL
1 ; HIGH LEVEL

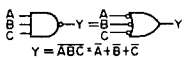
NOTE :

TYPE	VDD
TC74AC08F	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC10NS (TI) FLAT PACKAGE

C-MOS 3-INPUT NAND GATE
– TOP VIEW –



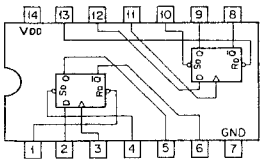


A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

0 : LOW LEVEL
1 : HIGH LEVEL

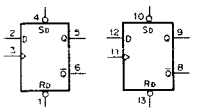
SN74HC74ANS (TI) FLAT PACKAGE
UPD74HC74G (NEC) FLAT PACKAGE

C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
– TOP VIEW –



INPUTS				OUTPUTS	
$\overline{S_D}$	$\overline{R_D}$	CK	D	Qn+1	$\overline{Q_{n+1}}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Q_n}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

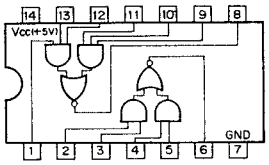


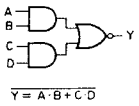
NOTE :

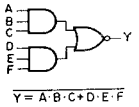
TYPE	VDD
74ACT	+5V
TC74AC74F	+2 to +5.5V
TC74ACT74F	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

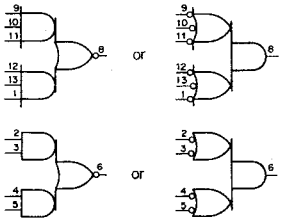
SN74LS51N (TI)

TTL 2-WIDE 2-INPUT/3-INPUT AND-OR-INVERT GATE
– TOP VIEW –



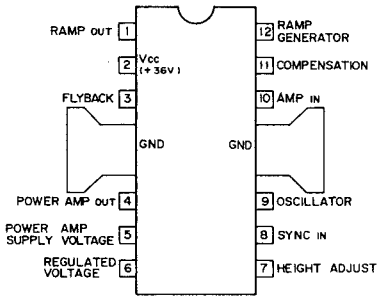


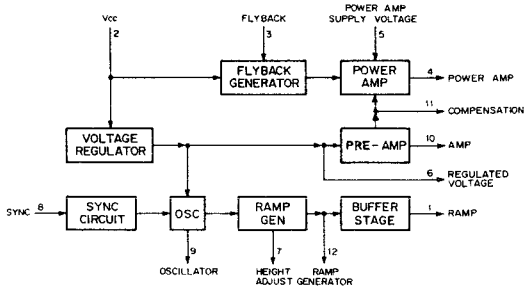




TDA1170N (SGS)

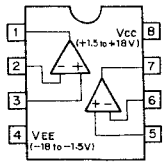
LOW NOISE TV VERTICAL DEFLECTION SYSTEM
– TOP VIEW –





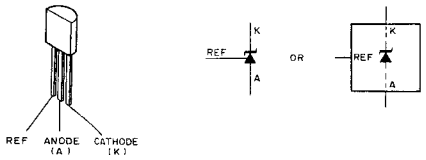
TL062CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(JFET INPUT)
– TOP VIEW –



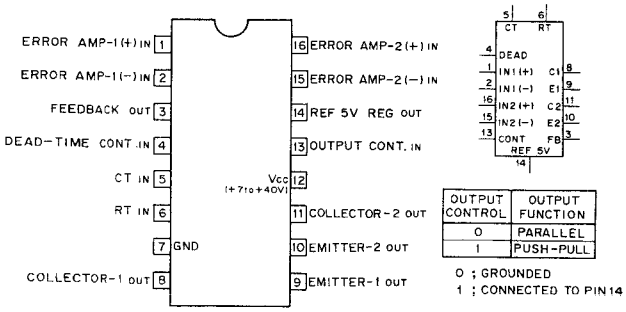
UPC1093J (NEC)

ADJUSTABLE PRECISION SHUNT REGULATOR



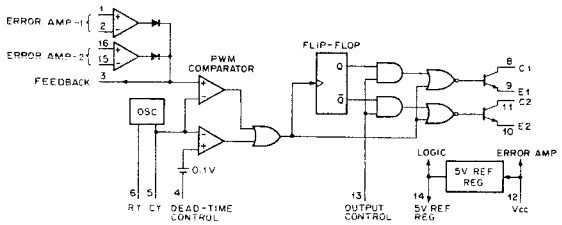
UPC494GS (NEC) FLAT PACKAGE

PWM POWER CONTROL
– TOP VIEW –



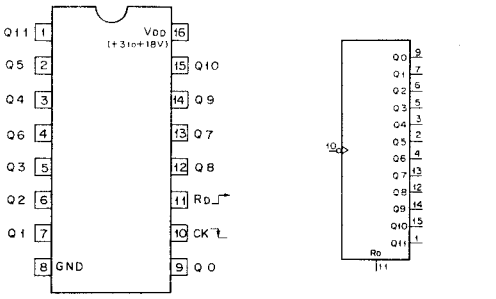
OUTPUT CONTROL	OUTPUT FUNCTION
0	PARALLEL
1	PUSH-PULL

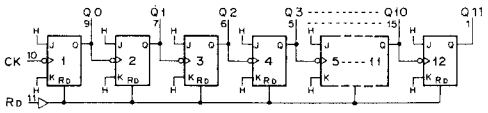
0 ; GROUNDED
1 ; CONNECTED TO PIN 14



UPD4040BG (NEC)

C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER
– TOP VIEW –





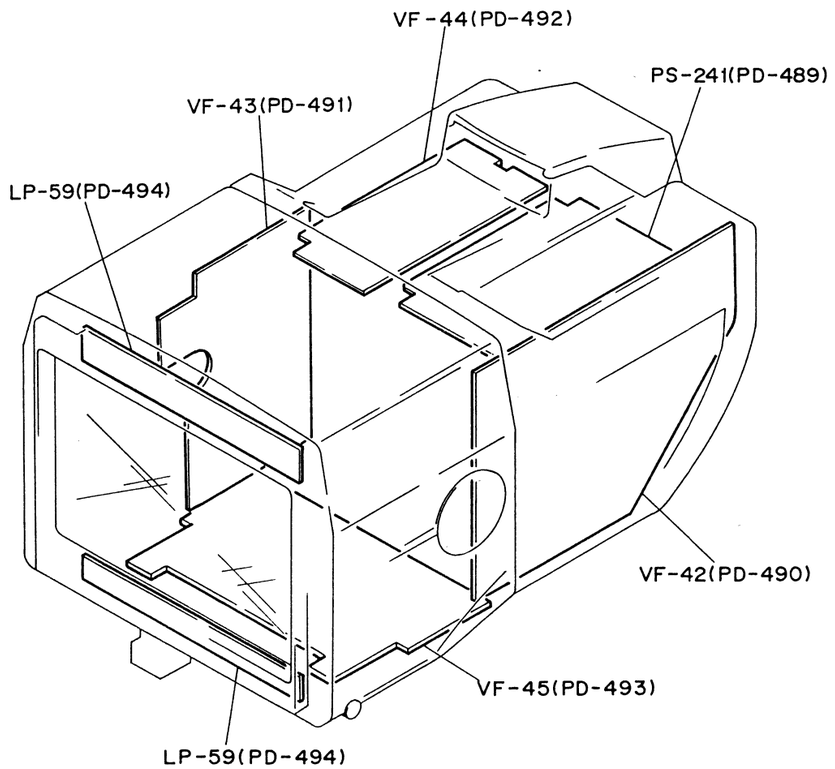
COUNT	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	1	0
3	0	0	0	0	0	0	0	0	0	0	1	1
	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
4095	1	1	1	1	1	1	1	1	1	1	1	1

RD	Q11 ····· Q0
1	ALL LOW
0	COUNT

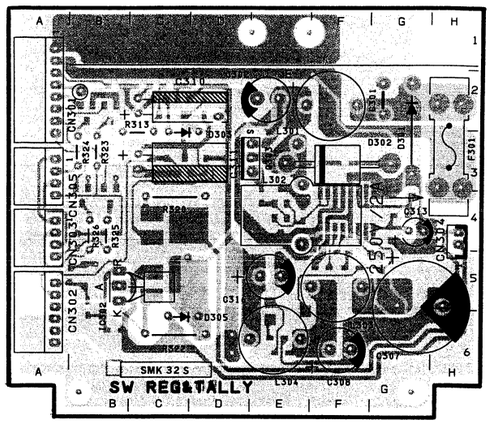
0 ; LOW LEVEL
1 ; HIGH LEVEL

SECTION C
SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATION

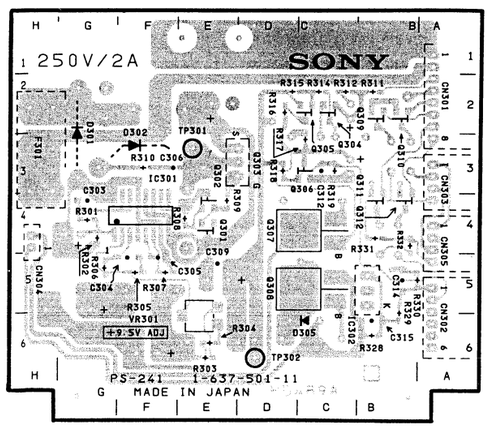
BOARD LAYOUT



PS-241 BOARD

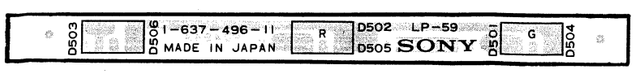


1-637-501-11 COMPONENT SIDE



1-637-501-11 SOLDERING SIDE

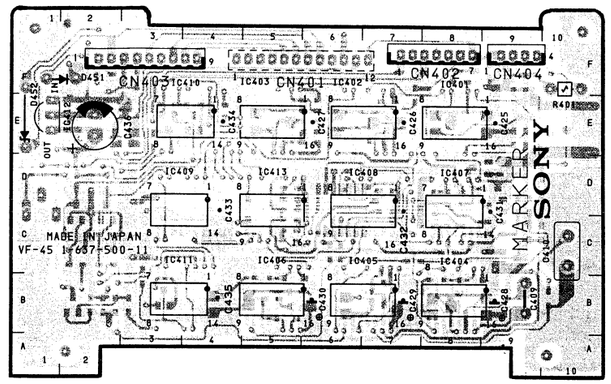
LP-59 BOARD



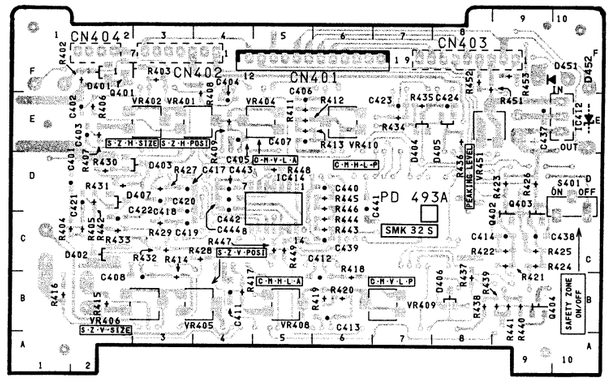
1-637-499-11 COMPONENT SIDE

VF-45 BOARD

Serial No. 10001 – 10100 (UC)
30001 – 30050 (J)
40001 – 40200 (EK)



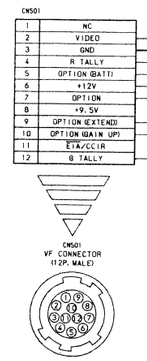
1-637-500-11 COMPONENT SIDE

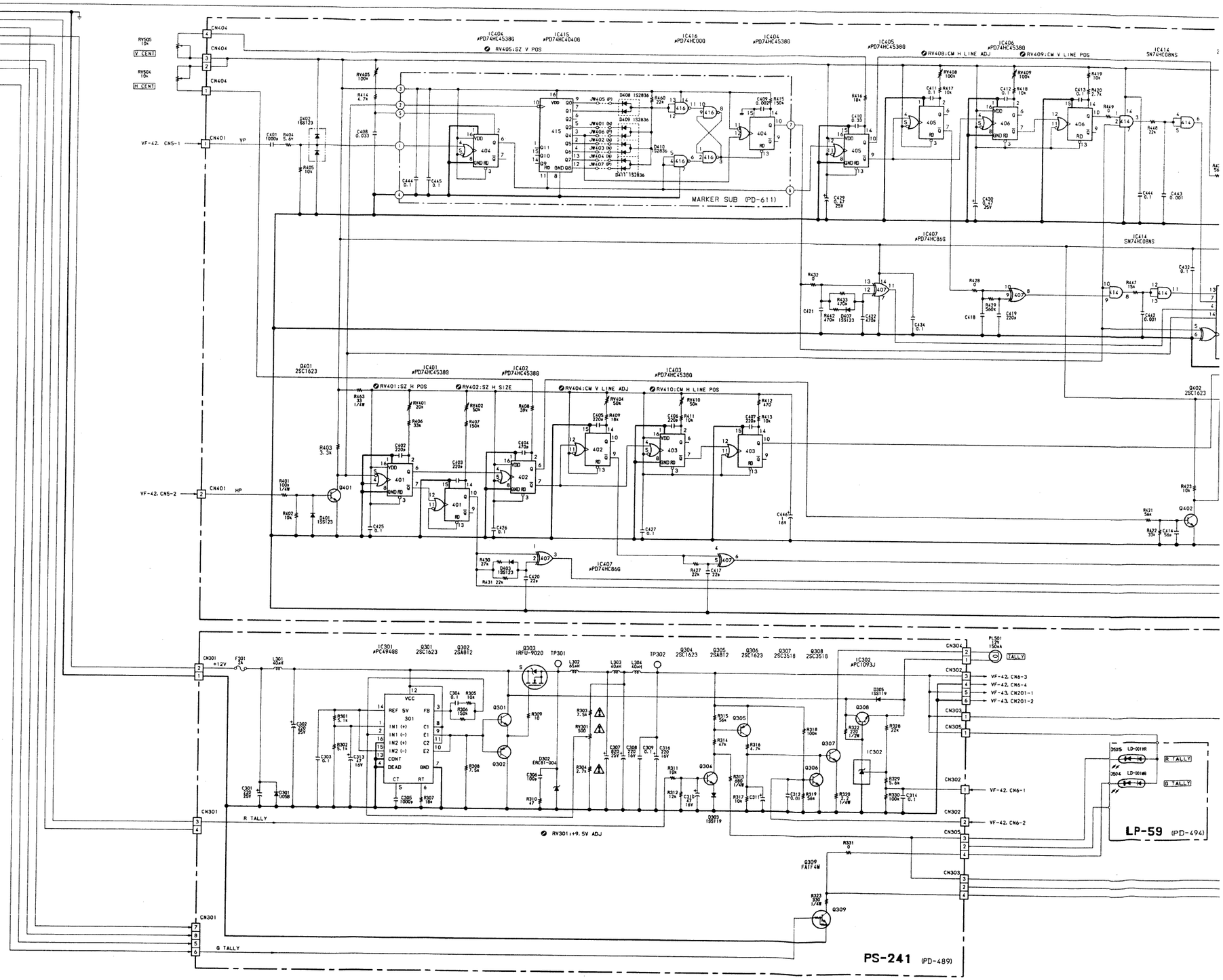


1-637-500-11 SOLDERING SIDE

PS-241 BOARD
VF-45 BOARD
LP-59 BOARD

Serial No. 10001 – 10100 (UC)
30001 – 30050 (J)
40001 – 40200 (EK)





BVF-55 (J, UC)
BVF-55CE (EK)

C-5 (a)

C-6 (a)

A | B | C | D | E | F | G | H

PS-241, VF-45, LP-59

PS-241 BOARD (PD-489)
VF-45 BOARD (PD-493, PD-611)
LP-59 BOARD (PD-494)
BVF-55 (J, UC)
BVF-55CE (EK)

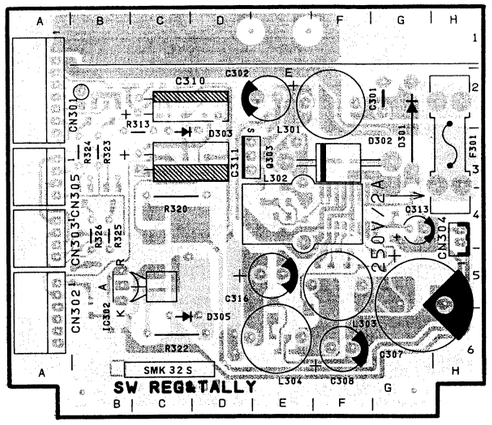
C-6 (a)

C-7 (a)

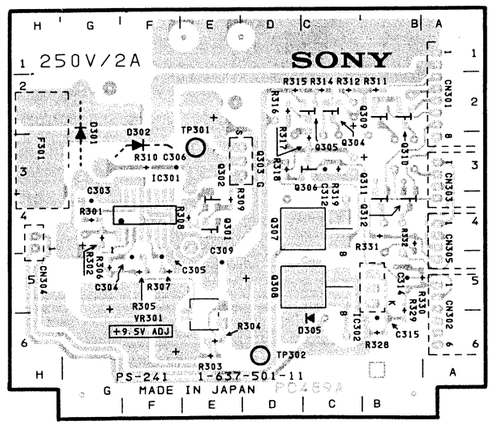
B-BVF55-PS/VF/LP/M#1

PS-241, VF-45, LP-59

PS-241 BOARD

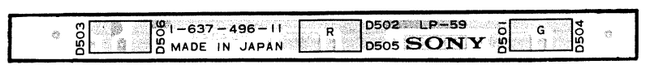


1-637-501-11 COMPONENT SIDE



1-637-501-11 SOLDERING SIDE

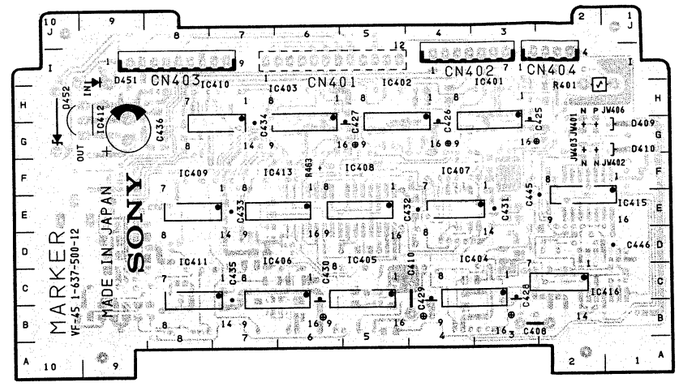
LP-59 BOARD



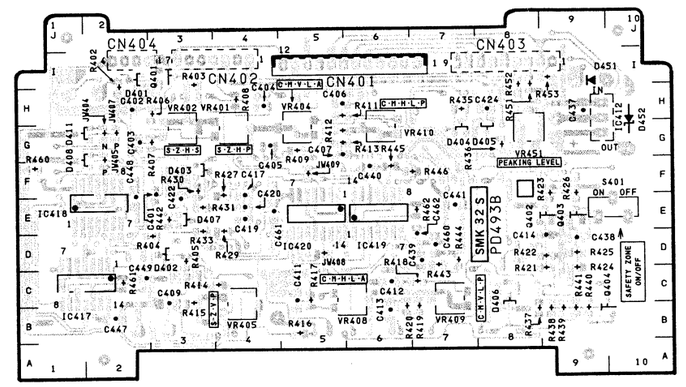
1-637-499-11 COMPONENT SIDE

VF-45 BOARD

Serial No. 10101 –	(UC)
30051 –	(J)
40201 –	(EK)



1-637-500-12 COMPONENT SIDE



1-637-500-12 SOLDERING SIDE

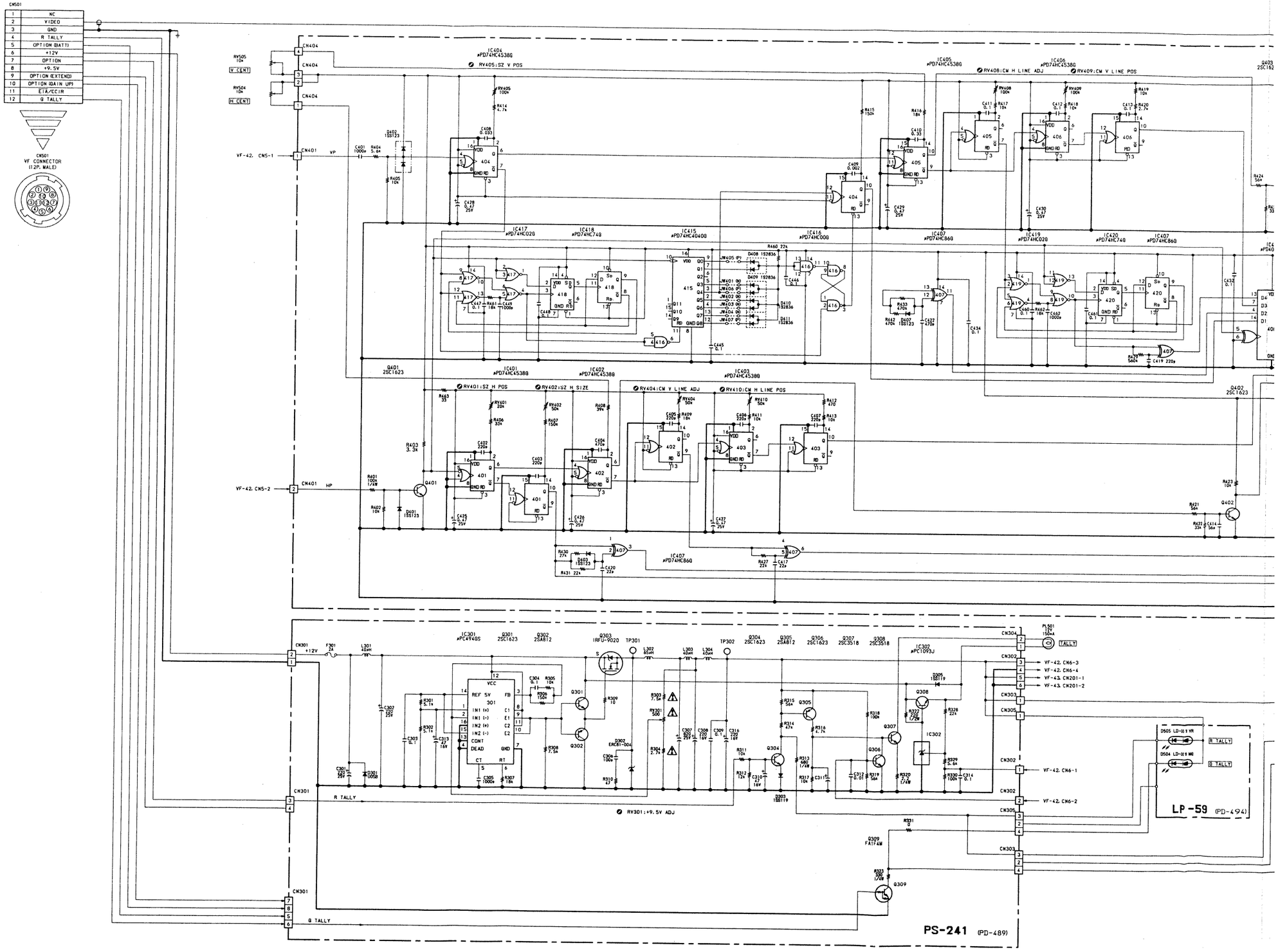
PS-241 BOARD
VF-45 BOARD
LP-59 BOARD

Serial No. 10101 –	(UC)
30051 –	(J)
40201 –	(EK)

CN501

1	NC
2	VIDEO
3	GND
4	R TALLY
5	OPTION (BATT)
6	+12V
7	OPTION
8	+9.5V
9	OPTION (EXTEND)
10	OPTION (GAIN UP)
11	ETA/CCIR
12	G TALLY

CN501
VF CONNECTOR
(12P, MALE)



C-5 (b)

C-6 (b)

BVF-55 (J, UC)
BVF-55CE (EK)

A | B | C | D | E | F | G | H

PS-241, VF-45, LP-59

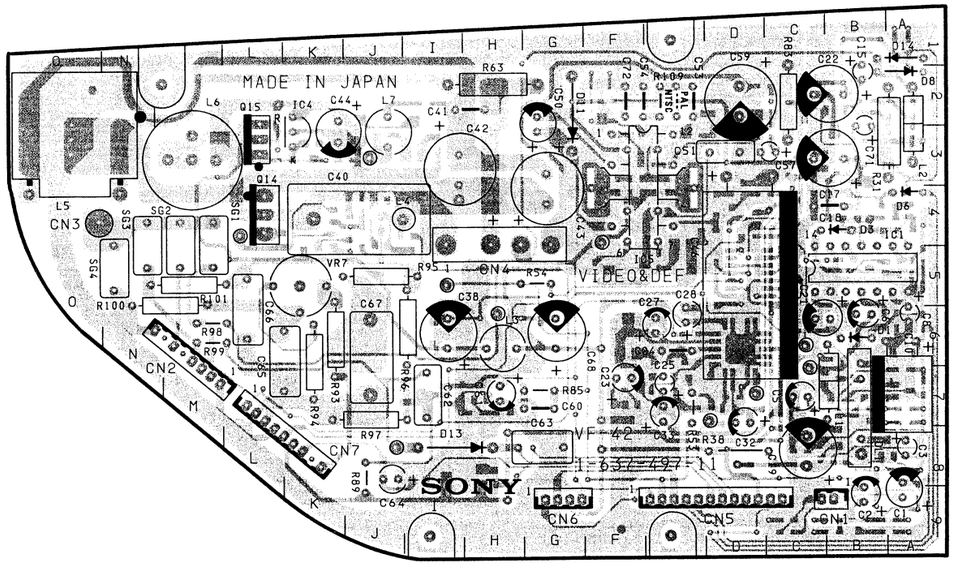
PS-241 BOARD (PD-489)
VF-45 BOARD (PD-493)
LP-59 BOARD (PD-494)
BVF-55 (J, UC)
BVF-55CE (EK)

C-6 (b)

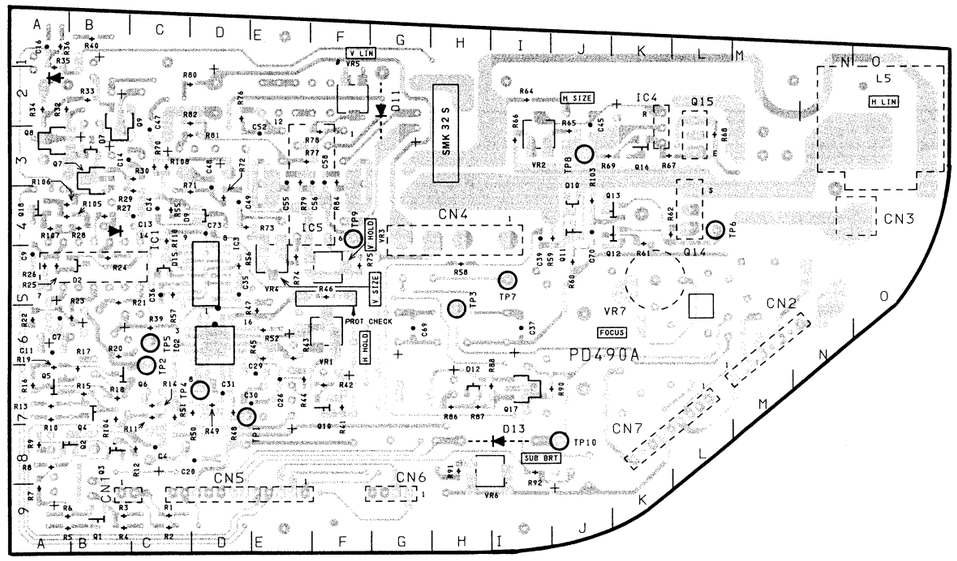
C-7 (b)

B-BVF55-PS/VF/LP/M#2

VF-42 BOARD

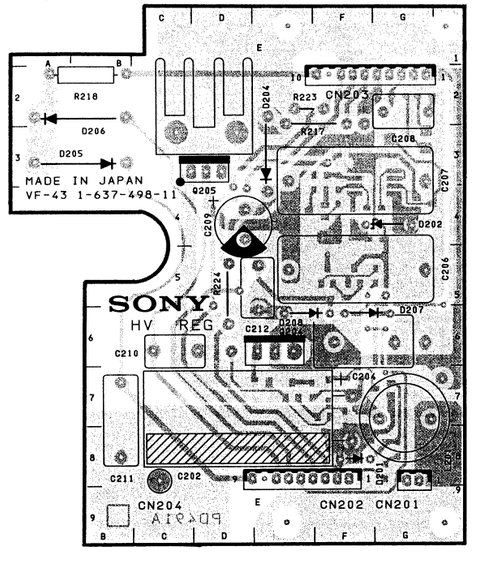


1-637-497-11 COMPONENT SIDE

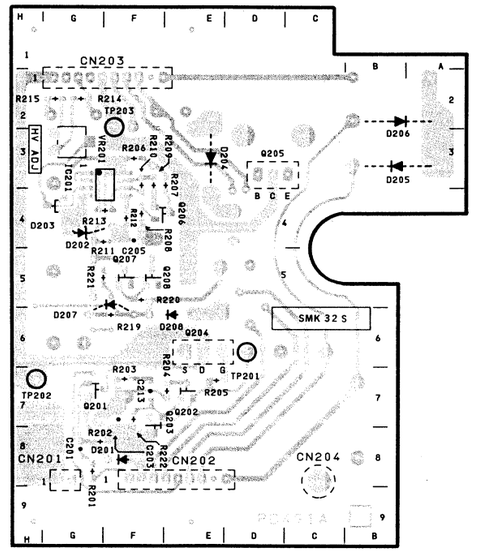


1-637-497-11 SOLDERING SIDE

VF-43 BOARD

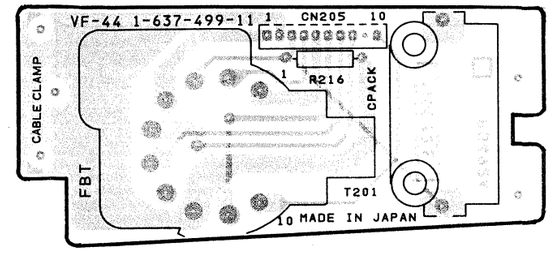


1-637-498-11 COMPONENT SIDE

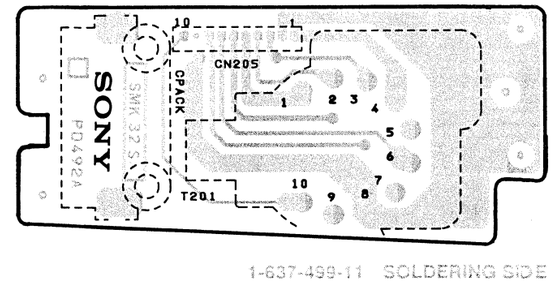


1-637-498-11 SOLDERING SIDE

VF-44 BOARD

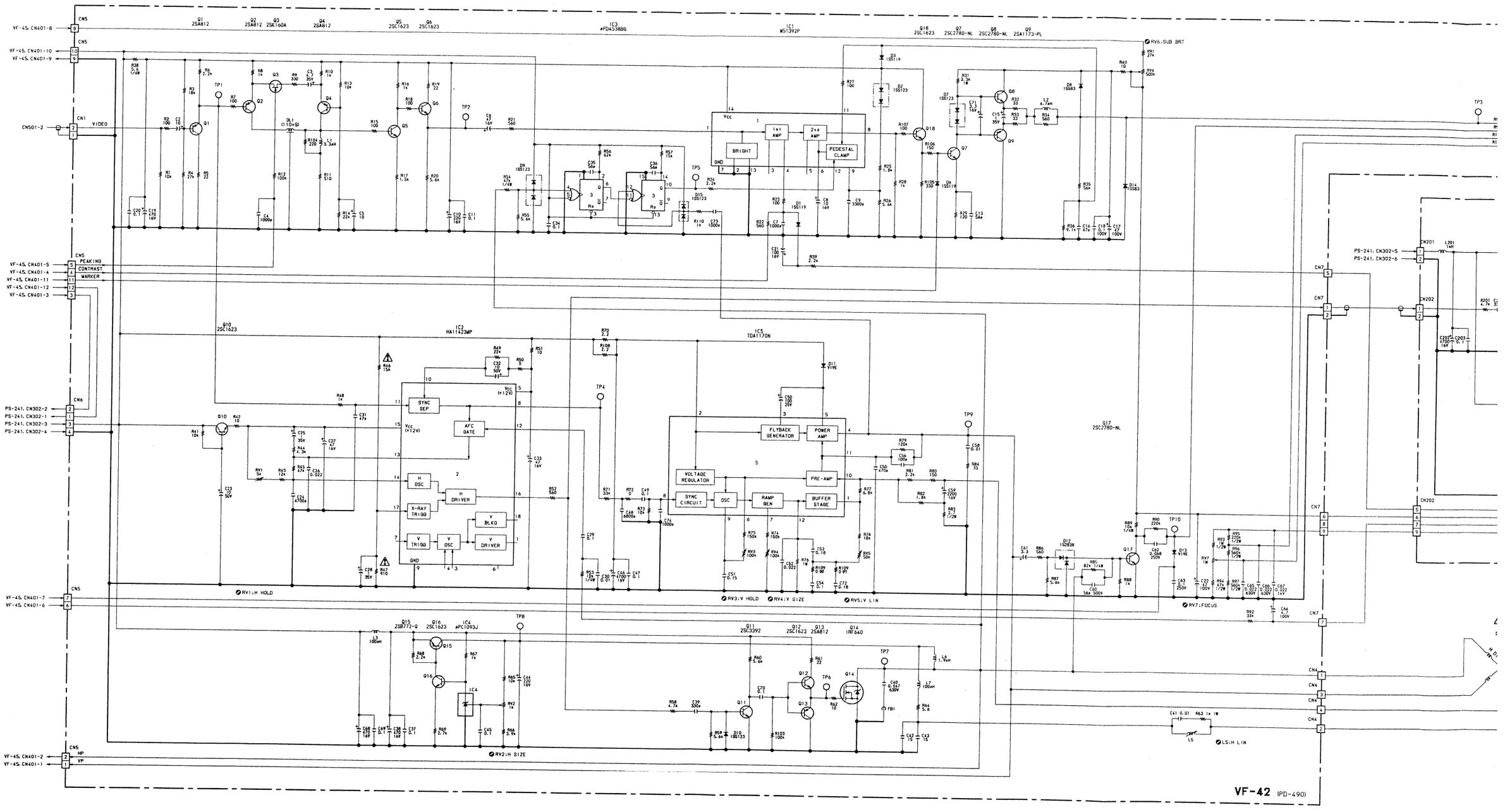


1-637-496-11 COMPONENT SIDE



1-637-499-11 SOLDERING SIDE

VF-42 BOARD
VF-43 BOARD
VF-44 BOARD

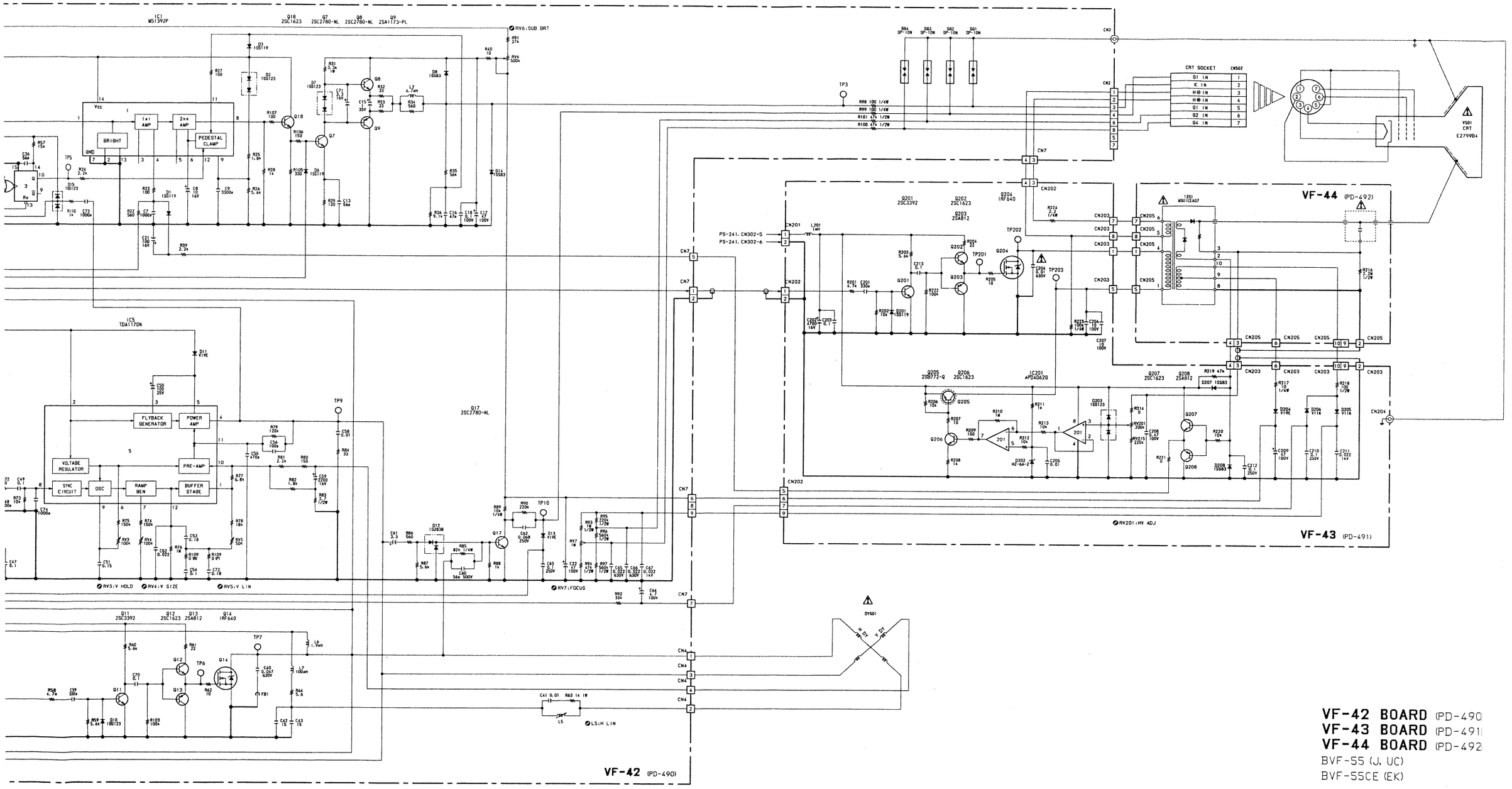


BVF-55 (J, UC)
BVF-55CE (EK)

C-11 C-12

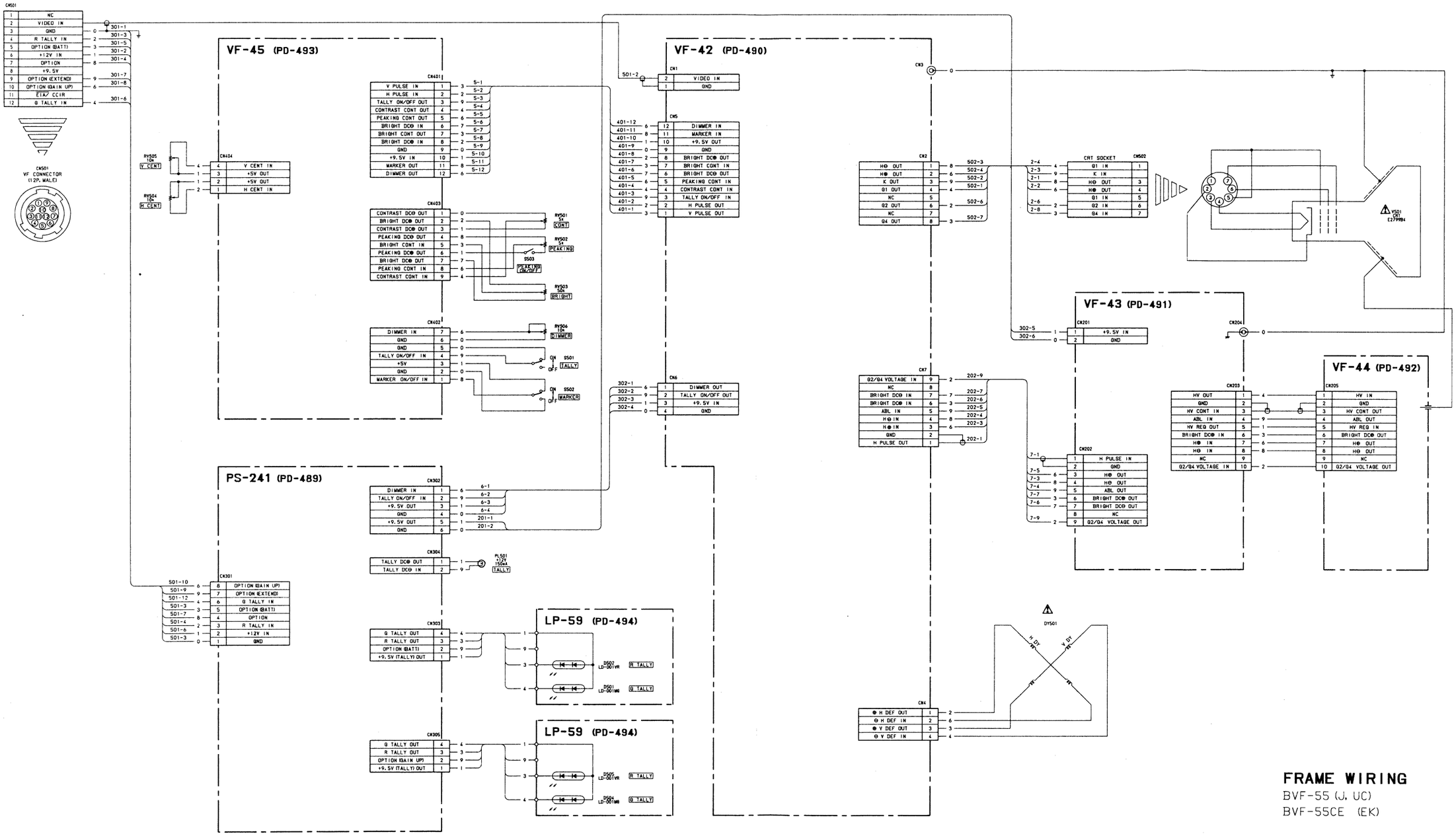
A B C D E F G H

VF-42, VF-43, VF-44



VF-42 BOARD (PD-490)
VF-43 BOARD (PD-491)
VF-44 BOARD (PD-492)
BVF-55 (J, UC)
BVF-55CE (EK)

FRAME WIRING



FRAME WIRING
BVF-55 (J, UC)
BVF-55CE (EK)

SECTION D
SPARE PARTS

PARTS INFORMATION

1. **Safety Related Component Warning**

   Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replace parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to"accommodating the improved parts and/or engineering changes" or"standardization of genuine parts."
   - This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present."
   - Regarding engineering parts and diagrams changes in our engineering department, refer to Sony service bulletins and service manual supplements.

3. The parts marked with"S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. **Abbreviation**

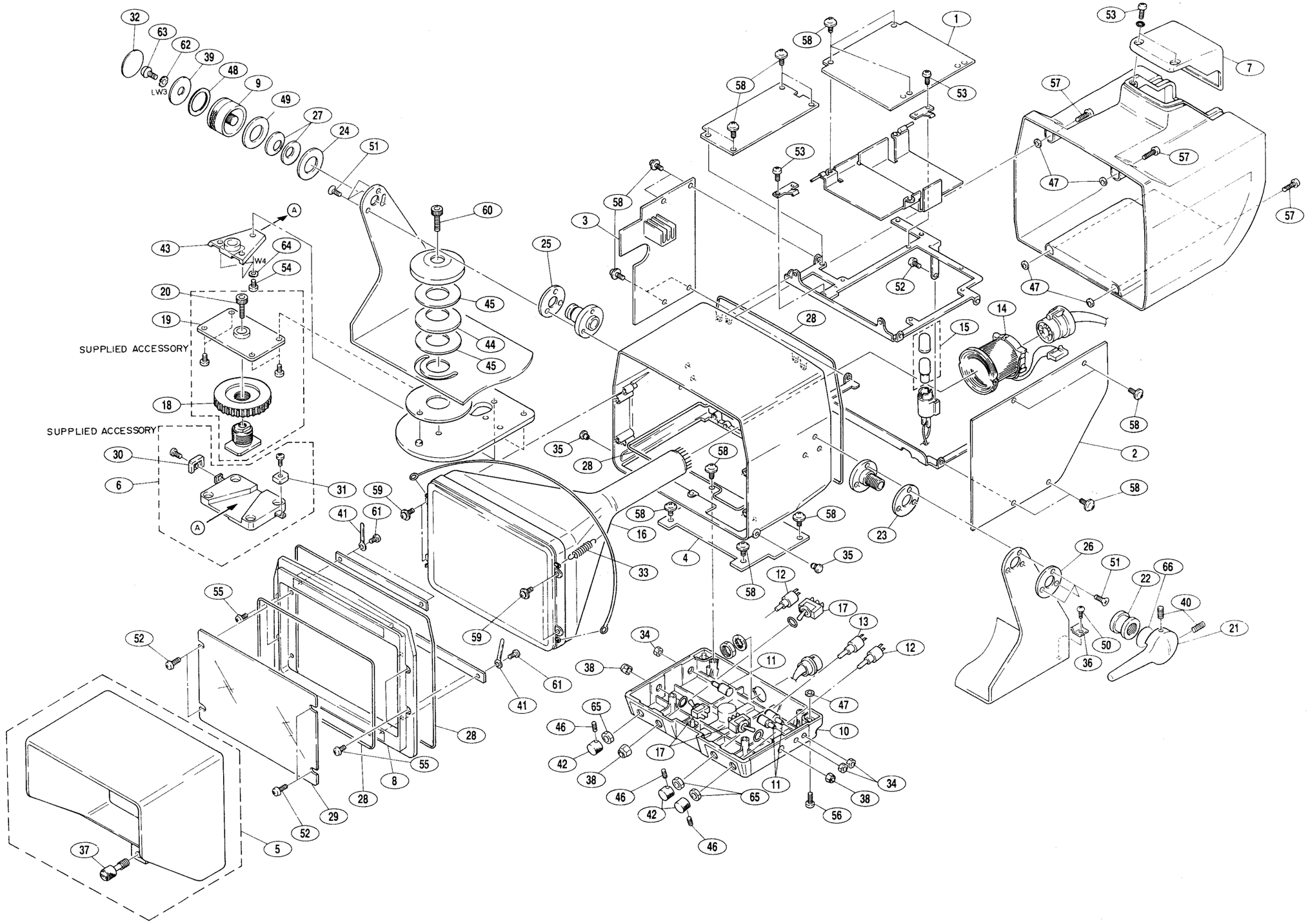
REF. No.	DESCRIPTION	REF. No.	DESCRIPTION	REF. No.	DESCRIPTION
BT	BATTERY	**FB**	FERRITE BEAD	**RV**	VARIABLE RESISTOR
BZ	BUZZER	**FL**	FILTER	**RY**	RELAY
C	CAPACITOR	**IC**	IC	**S**	SWITCH
CN	CONNECTOR	**L**	INDUCTOR	**T**	TRANSFORMER
CP	COMBINATION PARTS	**LV**	VARIABLE INDUCTOR	**TH**	THERMISTOR
CV	VARIABLE CAPACITOR	**Q**	TRANSISTOR	**TM**	TIMER
D	DIODE	**R**	RESISTOR	**VDR**	VARISTOR
DL	DELAY LINE	**RB**	RESISTOR BLOCK	**X**	OSCILLATOR

All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

EXPLODED VIEW

No.	Part No.	SP	Description
1	A-7515-265-A	o	MOUNTED CIRCUIT BOARD, PS-241 (PD-489)
2	A-7515-266-A	o	MOUNTED CIRCUIT BOARD, VF-42 (PD-490)
3	A-7515-267-A	o	MOUNTED CIRCUIT BOARD, VF-43 (PD-491)
4	A-7515-268-A	o	MOUNTED CIRCUIT BOARD, VF-45 (PD-493)
5	A-7612-404-A	o	HOOD ASSY
6	A-7612-405-A	o	SHOE ASSY, V WEDGE
7	X-3165-434-1	o	COVER ASSY, TALLY LAMP
8	X-3165-436-1	o	BEZEL ASSY
9	X-3165-595-1	o	KNOB ASSY, FRICTION
10	X-3165-622-1	o	VR BOX ASSY
11	1-223-165-00	s	RES, ADJ, WIREWOUND 10K "H CENT" "V CENT" "DIMMER"
12	1-238-506-11	s	RES, VAR, METAL 5K "CONTRAST" "PEAKING"
13		s	RES, ADJ, METAL 50K "BRIGHT"
14	⚠ 1-451-377-11	s	DEFLECTION YOKE, W/B (5 INCH)
15	1-518-411-21	s	LAMP
16	⚠ 1-546-088-11	s	CATHODE-RAY TUBE, B/W (5 INCH)
17	1-554-924-11	s	SWITCH, TOGGLE "PEAKING" "TALLY" "MARKER"
18	2-113-216-01	o	SHOE, FITTING
19	2-113-217-01	o	BASE, FITTING FOOT
20	2-113-285-01	o	BOLT (1/4"X15),HEXAGON SOCKET
21	3-167-481-01	o	LEVER, LOCK, TILT
22	3-167-482-01	o	SCREW, LOCK, TILT
23	3-167-484-01	s	SPACER (1), CORK
24	3-167-485-01	o	SPACER (2)
25	3-167-486-02	o	SPACER (4)
26	3-167-486-12	o	SPACER (4)
27	3-167-487-01	o	SPRING, PLATE
28	3-167-490-01	s	TUBE, SILICON
29	3-167-493-01	s	MASK, CRT
30	3-167-513-01	o	KNOB, RELEASE LEVER
31	3-167-514-01	o	KNOB, STOPPER
32	3-168-706-01	o	LID
33	3-536-006-XX	s	SPRING, TENSION
34	3-664-519-00	o	NUT (M4)
35	3-673-018-11	s	SCREW, BLIND
36	3-678-684-00	o	HOLDER, CABLE
37	3-680-616-11	s	SCREW
38	3-685-104-01	s	NUT (M6), CONTROL
39	3-701-418-00	s	WASHER, SPECIAL
40	3-701-512-01	s	SET SCREW, DOUBLE POINT,(M4X8)
41	3-701-822-00	o	HOLDER, WIRE
42	3-722-486-11	s	KNOB
43	3-742-015-01	o	WEDGE (B), MOUNTING
44	4-027-627-01	o	SPRING (DIA. 18)
45	4-027-640-01	o	SPACER, PAN
46	7-621-731-08	s	SET-SCT,HEX. 2X2.5,FLAT POINT
47	7-623-923-11	s	WASHER 2.6, NYLONE
48	3-146-316-21	s	RING, RUBBER
49	3-169-580-01	s	WASHER, THRUST
50	7-627-556-38	s	SCREW +P 2.6X4.0
51	7-682-247-04	s	SCREW +K 3X6
52	7-682-545-04	s	SCREW +B 3X4
53	7-682-546-04	s	SCREW +B 3X5
54	7-682-561-09	s	SCREW +B 4X8
55	7-682-548-09	s	SCREW +B 3X8
56	7-682-550-09	s	SCREW +B 3X12
57	7-682-551-09	s	SCREW +B 3X14
58	7-682-903-01	s	SCREW +PWH 3X5
59	7-682-903-21	s	SCREW +PWH 3X8
60	7-683-434-04	s	BOLT,HEXAGON SOCKET 5X8
61	7-685-532-19	s	SCREW +BTP 2.6X5 TYPE2 N-S
62	7-623-422-07	s	LW3, TYPE B
63	7-682-549-04	s	SCREW +B 3X10
64	7-688-004-02	s	WASHER, 4 SMALL
65	3-720-962-01	s	NUT, VOLUME
66	3-171-209-01	o	SPACER, RUBBER

OVERALL BLOCK



CAPACITOR, CHIP CERAMIC

Part No.	SP	Description			
1-163-083-00	s	CAP, CHIP CERAMIC	1pF	+-0.25pF	50V
1-163-085-00	s	CAP, CHIP CERAMIC	2pF	+-0.25pF	50V
1-163-087-00	s	CAP, CHIP CERAMIC	4pF	+-0.25pF	50V
1-163-089-00	s	CAP, CHIP CERAMIC	6pF	+-0.5pF	50V
1-163-091-00	s	CAP, CHIP CERAMIC	8pF	+-0.5pF	50V
1-163-093-00	s	CAP, CHIP CERAMIC	10pF	5%	50V
1-163-097-00	s	CAP, CHIP CERAMIC	15pF	5%	50V
1-163-101-00	s	CAP, CHIP CERAMIC	22pF	5%	50V
1-163-105-00	s	CAP, CHIP CERAMIC	33pF	5%	50V
1-163-109-00	s	CAP, CHIP CERAMIC	47pF	5%	50V
1-163-113-00	s	CAP, CHIP CERAMIC	68pF	5%	50V
1-163-117-00	s	CAP, CHIP CERAMIC	100pF	5%	50V
1-163-121-00	s	CAP, CHIP CERAMIC	150pF	5%	50V
1-163-125-00	s	CAP, CHIP CERAMIC	220pF	5%	50V
1-163-129-00	s	CAP, CHIP CERAMIC	330pF	5%	50V
1-163-133-00	s	CAP, CHIP CERAMIC	470pF	5%	50V
1-163-137-00	s	CAP, CHIP CERAMIC	680pF	5%	50V
1-163-141-00	s	CAP, CHIP CERAMIC	1000pF	5%	50V
1-163-145-00	s	CAP, CHIP CERAMIC	1500pF	10%	50V
1-164-161-11	s	CAP, CHIP CERAMIC	2200pF	10%	100V
1-164-182-11	s	CAP, CHIP CERAMIC	3300pF	10%	100V
1-163-017-00	s	CAP, CHIP CERAMIC	4700pF	10%	50V
1-163-019-00	s	CAP, CHIP CERAMIC	6800pF	10%	50V
1-164-232-11	s	CAP, CHIP CERAMIC	0.01	20%	100V
1-163-023-00	s	CAP, CHIP CERAMIC	0.015	10%	50V
1-163-034-00	s	CAP, CHIP CERAMIC	0.033		50V
1-163-035-00	s	CAP, CHIP CERAMIC	0.047		50V
1-163-036-00	s	CAP, CHIP CERAMIC	0.068		50V
1-163-038-00	s	CAP, CHIP CERAMIC	0.1		50V

RESISTOR, CHIP

Part No.	SP	Description			
1-216-295-00	s	RES, CHIP	0	5%	1/10W
1-216-298-00	s	RES, CHIP	2.2	5%	1/10W
1-216-302-00	s	RES, CHIP	2.7	5%	1/10W
1-216-304-11	s	RES, CHIP	3.3	5%	1/10W
1-216-306-11	s	RES, CHIP	3.9	5%	1/10W
1-216-308-00	s	RES, CHIP	4.7	5%	1/10W
1-216-309-00	s	RES, CHIP	5.6	5%	1/10W
1-216-311-00	s	RES, CHIP	6.8	5%	1/10W
1-216-313-00	s	RES, CHIP	8.2	5%	1/10W
1-216-001-00	s	RES, CHIP	10	5%	1/10W
1-216-003-11	s	RES, CHIP	12	5%	1/10W
1-216-005-00	s	RES, CHIP	15	5%	1/10W
1-216-007-00	s	RES, CHIP	18	5%	1/10W
1-216-009-00	s	RES, CHIP	22	5%	1/10W
1-216-011-00	s	RES, CHIP	27	5%	1/10W
1-216-013-00	s	RES, CHIP	33	5%	1/10W
1-216-015-00	s	RES, CHIP	39	5%	1/10W
1-216-017-00	s	RES, CHIP	47	5%	1/10W
1-216-019-00	s	RES, CHIP	56	5%	1/10W
1-216-021-00	s	RES, CHIP	68	5%	1/10W
1-216-023-00	s	RES, CHIP	82	5%	1/10W
1-216-025-00	s	RES, CHIP	100	5%	1/10W
1-216-027-00	s	RES, CHIP	120	5%	1/10W
1-216-029-00	s	RES, CHIP	150	5%	1/10W
1-216-031-00	s	RES, CHIP	180	5%	1/10W
1-216-033-00	s	RES, CHIP	220	5%	1/10W
1-216-035-00	s	RES, CHIP	270	5%	1/10W
1-216-037-00	s	RES, CHIP	330	5%	1/10W
1-216-039-00	s	RES, CHIP	390	5%	1/10W
1-216-041-00	s	RES, CHIP	470	5%	1/10W
1-216-043-00	s	RES, CHIP	560	5%	1/10W
1-216-045-00	s	RES, CHIP	680	5%	1/10W
1-216-047-00	s	RES, CHIP	820	5%	1/10W
1-216-049-00	s	RES, CHIP	1k	5%	1/10W
1-216-051-00	s	RES, CHIP	1.2k	5%	1/10W
1-216-053-00	s	RES, CHIP	1.5k	5%	1/10W
1-216-055-00	s	RES, CHIP	1.8k	5%	1/10W
1-216-057-00	s	RES, CHIP	2.2k	5%	1/10W
1-216-059-00	s	RES, CHIP	2.7k	5%	1/10W
1-216-061-00	s	RES, CHIP	3.3k	5%	1/10W
1-216-063-00	s	RES, CHIP	3.9k	5%	1/10W
1-216-065-00	s	RES, CHIP	4.7k	5%	1/10W
1-216-067-00	s	RES, CHIP	5.6k	5%	1/10W
1-216-069-00	s	RES, CHIP	6.8k	5%	1/10W
1-216-071-00	s	RES, CHIP	8.2k	5%	1/10W
1-216-073-00	s	RES, CHIP	10k	5%	1/10W
1-216-075-00	s	RES, CHIP	12k	5%	1/10W
1-216-077-00	s	RES, CHIP	15k	5%	1/10W
1-216-079-00	s	RES, CHIP	18k	5%	1/10W
1-216-081-00	s	RES, CHIP	22k	5%	1/10W
1-216-083-00	s	RES, CHIP	27k	5%	1/10W
1-216-085-00	s	RES, CHIP	33k	5%	1/10W
1-216-748-11	s	RES, CHIP	39k	5%	1/10W
1-216-089-00	s	RES, CHIP	47k	5%	1/10W
1-216-091-00	s	RES, CHIP	56k	5%	1/10W

RESISTOR, CHIP

Part No.	SP	Description			
1-216-093-00	s	RES, CHIP	68k	5%	1/10W
1-216-095-00	s	RES, CHIP	82k	5%	1/10W
1-216-097-00	s	RES, CHIP	100k	5%	1/10W
1-216-099-00	s	RES, CHIP	120k	5%	1/10W
1-216-101-00	s	RES, CHIP	150k	5%	1/10W
1-216-103-00	s	RES, CHIP	180k	5%	1/10W
1-216-105-00	s	RES, CHIP	220k	5%	1/10W
1-216-107-00	s	RES, CHIP	270k	5%	1/10W
1-216-109-00	s	RES, CHIP	330k	5%	1/10W
1-216-111-00	s	RES, CHIP	390k	5%	1/10W
1-216-113-00	s	RES, CHIP	470k	5%	1/10W
1-216-115-00	s	RES, CHIP	560k	5%	1/10W
1-216-117-00	s	RES, CHIP	680k	5%	1/10W
1-216-119-00	s	RES, CHIP	820k	5%	1/10W
1-216-121-00	s	RES, CHIP	1.0M	5%	1/10W
1-216-123-11	s	RES, CHIP	1.2M	5%	1/10W
1-216-125-00	s	RES, CHIP	1.5M	5%	1/10W
1-216-127-11	s	RES, CHIP	1.8M	5%	1/10W
1-216-129-00	s	RES, CHIP	2.2M	5%	1/10W
1-216-131-11	s	RES, CHIP	2.7M	5%	1/10W
1-216-133-00	s	RES, CHIP	3.3M	5%	1/10W

LP-59 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-496-11	o	PRINTED CIRCUIT BOARD, LP-59 (PD-494)
D501	8-719-948-07	s	LED LD-001MG, GRN
D502	8-719-946-55	s	DIODE LD-001VR

PS-241 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-265-A	o	MOUNTED CIRCUIT BOARD, PS-241 (PD-489)
C301	1-124-510-11	s	ELECT 220uF 20% 25V
C302	1-124-510-11	s	ELECT 220uF 20% 25V
C306	1-163-251-11	s	CERAMIC 100PF 5% 50V
C307	1-126-141-11	s	ELECT 820uF 20% 25V
C308	1-124-120-11	s	ELECT 220uF 20% 16V
C310	1-124-589-11	s	ELECT 47uF 20% 10V
C313	1-124-589-11	s	ELECT 47uF 20% 10V
C316	1-124-120-11	s	ELECT 220uF 20% 25V
CN301	1-506-487-11	o	CONNECTOR, 8P, MALE
CN302	1-506-485-11	o	CONNECTOR, 6P, MALE
CN303	1-506-483-21	o	CONNECTOR, 4P, MALE
CN304	1-506-467-11	o	CONNECTOR, 2P, MALE
CN305	1-506-483-21	o	CONNECTOR, 4P, MALE
D301	8-719-911-55	s	DIODE U05G
D302	8-719-981-00	s	DIODE ERB81-004
D303	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
F301	1-532-743-11	s	FUSE, GLASS TUBE 2A 125V
IC301	8-759-144-88	s	IC UPC494GS
IC302	8-759-140-85	s	IC UPC1093J
L301	1-424-571-11	s	INDUCTOR 40uH
L302	1-412-745-11	s	INDUCTOR 55uH
L303	1-424-571-11	s	INDUCTOR 40uH
L304	1-424-571-11	s	INDUCTOR 40uH
Q301	8-729-100-66	s	TRANSISTOR 2SC1623
Q302	8-729-216-22	s	TRANSISTOR 2SA1162
Q303	8-729-927-83	s	TRANSISTOR IRFU9020
Q304	8-729-100-66	s	TRANSISTOR 2SC1623
Q305	8-729-216-22	s	TRANSISTOR 2SA1162
Q306	8-729-100-66	s	TRANSISTOR 2SC1623
Q307	8-729-105-19	s	TRANSISTOR 2SC3518
Q308	8-729-105-19	s	TRANSISTOR 2SC3518
Q309	8-729-113-10	s	TRANSISTOR FA1F4M-L32
R301	1-216-668-11	s	METAL CHIP 5.1K 0.50% 1/10W
R302	1-216-668-11	s	METAL CHIP 5.1K 0.50% 1/10W
R303 ⚠	1-216-672-11	s	METAL CHIP 7.5K 0.50% 1/10W
R304 ⚠	1-216-059-00	s	METAL CHIP 2.7K 5% 1/10W
R308	1-216-672-11	s	METAL CHIP 7.5K 0.50% 1/10W
R313	1-249-411-11	s	CARBON 330 5% 1/4W
R320	1-249-478-11	s	CARBON 2.2 5% 1/2W
R322	1-247-743-11	s	CARBON 220 5% 1/2W
R323	1-249-411-11	s	CARBON 330 5% 1/4W
RV301 ⚠	1-237-032-11	s	RES, ADJ, METAL 500

Please see pages D-5 and D-6 for the part numbers of capacitors and resistors that are not listed in the parts list.

VF-42 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-266-A	o	MOUNTED CIRCUIT BOARD, VF-42 (PD-490)
C2	1-124-261-00	s	ELECT 10uF 20% 50V
C3	1-131-351-00	s	TANTALUM 4.7uF 10% 25V
C5	1-124-261-00	s	ELECT 10uF 20% 50V
C6	1-124-589-11	s	ELECT 47uF 20% 10V
C8	1-131-365-00	s	TANTALUM 10uF 10% 16V
C10	1-124-120-11	s	ELECT 220uF 20% 25V
C11	1-163-077-00	s	CERAMIC 0.1uF 50V
C13	1-163-245-11	s	CERAMIC 56PF 5% 50V
C15	1-131-347-00	s	TANTALUM 1uF 10% 35V
C17	1-124-931-11	s	ELECT 47uF 20% 100V
C18	1-106-220-00	s	MYLAR 0.1uF 5% 100V
C19	1-126-103-11	s	ELECT 470uF 20% 16V
C20	1-163-077-00	s	CERAMIC 0.1uF 50V
C21	1-126-101-11	s	ELECT 100uF 20% 16V
C22	1-124-931-11	s	ELECT 47uF 20% 100V
C23	1-124-261-00	s	ELECT 10uF 20% 50V
C24	1-130-479-00	s	MYLAR 0.0047uF 5% 50V
C25	1-131-347-00	s	TANTALUM 1uF 10% 35V
C26	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 25V
C27	1-124-589-11	s	ELECT 47uF 20% 10V
C28	1-131-347-00	s	TANTALUM 1uF 10% 35V
C29	1-163-077-00	s	CERAMIC 0.1uF 50V
C30	1-164-232-11	s	CERAMIC CHIP 0.01uF 10% 50V
C32	1-124-261-00	s	ELECT 10uF 20% 50V
C33	1-124-589-11	s	ELECT 47uF 20% 10V
C34	1-163-077-00	s	CERAMIC 0.1uF 50V
C35	1-163-245-11	s	CERAMIC 56PF 5% 50V
C36	1-163-245-11	s	CERAMIC 56PF 5% 50V
C37	1-163-077-00	s	CERAMIC 0.1uF 50V
C38	1-126-103-11	s	ELECT 470uF 20% 16V
C39	1-163-263-11	s	CERAMIC 330PF 5% 50V
C40	1-136-207-11	s	FILM 0.047uF 5% 630V
C41	1-136-203-11	s	FILM 0.01uF 5% 630V
C42	1-123-553-00	s	ELECT 15uF 20% 50V
C43	1-123-553-00	s	ELECT 15uF 20% 50V
C44	1-124-570-11	s	ELECT 220uF 20% 16V
C45	1-163-077-00	s	CERAMIC 0.1uF 50V
C46	1-124-898-11	s	ELECT 4700uF 20% 16V
C47	1-163-077-00	s	CERAMIC 0.1uF 50V
C49	1-163-077-00	s	CERAMIC 0.1uF 50V
C50	1-124-478-11	s	ELECT 100uF 20% 25V
C51	1-136-190-11	s	FILM 0.15uF 5% 250V
C52	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 25V
C53	1-130-498-00	s	MYLAR 0.18uF 5% 50V
C54	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C56	1-163-251-11	s	CERAMIC 100PF 5% 50V
C59	1-124-556-11	s	ELECT 2200uF 20% 16V
C60	1-107-165-00	s	MICA 56PF 5% 50V
C61	1-126-162-11	s	ELECT 3.3uF 20% 50V
C62	1-136-188-11	s	FILM 0.068uF 5% 250V
C63	1-136-189-00	s	FILM 0.1uF 5% 250V
C64	1-124-927-11	s	ELECT 4.7uF 20% 100V
C65	1-136-205-11	s	FILM 0.022uF 10% 630V
C66	1-136-205-11	s	FILM 0.022uF 10% 630V
C67	1-137-242-11	s	FILM 0.022uF 10% 1kV
C68	1-126-103-11	s	ELECT 470uF 20% 16V

(VF-42 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C69	1-163-077-00	s	CERAMIC 0.1uF 50V
C70	1-163-077-00	s	CERAMIC 0.1uF 50V
C71	1-131-368-00	s	TANTALUM 3.3uF 10% 16V
C72	1-130-498-00	s	MYLAR 0.18uF 5% 50V
C73	1-163-009-11	s	CERAMIC CHIP 0.001uF 10% 50V
C74	1-163-009-11	s	CERAMIC CHIP 0.001uF 10% 50V
CN1	1-506-467-11	o	CONNECTOR, 2P, MALE
CN2	1-506-473-11	o	CONNECTOR, 8P, MALE
CN3	1-506-163-00	s	PLUG
CN4	1-560-550-00	o	CONNECTOR, 4P, MALE
CN5	1-506-477-11	o	CONNECTOR, 12P, MALE
CN6	1-506-469-11	o	CONNECTOR, 4P, MALE
CN7	1-506-474-11	o	CONNECTOR, 9P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-800-76	s	DIODE 1SS226
D8	8-719-901-83	s	DIODE 1SS83
D9	8-719-800-76	s	DIODE 1SS226
D10	8-719-800-76	s	DIODE 1SS226
D11	8-719-971-20	s	DIODE V19G
D12	8-719-104-31	s	DIODE 1S2838
D13	8-719-971-20	s	DIODE ERC38-06
D14	8-719-901-83	s	DIODE 1SS83
D15	8-719-800-76	s	DIODE 1SS226
DL1	1-415-484-11	s	DELAY LINE 110nS
FB1	1-535-178-00	s	RES, FERRITE
IC1	8-759-633-27	s	IC M51392P
IC2	8-759-300-28	s	IC HA11423MP
IC3	8-759-009-51	s	IC MC14538BF
IC4	8-759-140-85	s	IC UPC1093J
IC5	8-759-512-10	s	IC TDA1170N
L1	1-408-111-00	s	INDUCTOR 3.3uH
L2	1-408-113-00	s	INDUCTOR 4.7uH
L3	1-410-933-11	s	INDUCTOR 100uH
L5	1-460-136-11	s	COIL, HORIZONTAL LINEARITY
L7	1-410-933-11	s	INDUCTOR 100uH
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-216-22	s	TRANSISTOR 2SA1162
Q3	8-729-117-84	s	TRANSISTOR 2SK160A-K26
Q4	8-729-216-22	s	TRANSISTOR 2SA1162
Q5	8-729-100-66	s	TRANSISTOR 2SC1623
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-104-28	s	TRANSISTOR 2SC2780-NL
Q8	8-729-104-28	s	TRANSISTOR 2SC2780-NL
Q9			
Q10	8-729-100-66	s	TRANSISTOR 2SC1623
Q11	8-729-821-47	s	TRANSISTOR 2SC3392-AY7
Q12	8-729-100-66	s	TRANSISTOR 2SC1623
Q13	8-729-216-22	s	TRANSISTOR 2SA1162
Q14	8-729-906-93	s	TRANSISTOR IRF640
Q15	8-729-177-22	s	TRANSISTOR 2SB772-Q
Q16	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-104-28	s	TRANSISTOR 2SC2780-NL
Q18	8-729-100-66	s	TRANSISTOR 2SC1623

Please see pages D-5 and D-6 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VF-42 BOARD)

Ref. No. or Q'ty		Part No.	SP	Description
R11		1-216-644-11	s	METAL CHIP 510 0.50% 1/10W
R31		1-215-872-11	s	METAL 3.3K 5% 1W
R36		1-216-674-11	s	METAL CHIP 9.1K 0.50% 1/10W
R38		1-249-483-11	s	CARBON 5.6 5% 1/2W
R44		1-216-666-11	s	METAL CHIP 4.3K 0.50% 1/10W
R46	⚠	1-216-085-00	s	METAL CHIP 33K 5% 1/10W
R47	⚠	1-216-650-11	s	METAL CHIP 910 0.50% 1/10W
R53		1-249-429-11	s	CARBON 10K 5% 1/4W
R54		1-249-437-11	s	CARBON 47K 5% 1/4W
R56		1-216-694-11	s	METAL CHIP 62K 0.50% 1/10W
R63		1-215-869-11	s	METAL 1K 1% 1W
R83		1-214-802-00	s	METAL 2.7 1% 1/2W
R85		1-249-440-11	s	CARBON 82K 5% 1/4W
R89		1-249-429-11	s	CARBON 10K 5% 1/4W
R93		1-214-937-00	s	METAL 1M 1% 1/2W
R94		1-249-492-11	s	CARBON 47K 5% 1/2W
R95		1-214-921-00	s	CARBON 220K 5% 1/2W
R96		1-214-931-00	s	CARBON 560K 5% 1/2W
R97		1-214-931-00	s	CARBON 560K 5% 1/2W
R98		1-249-405-11	s	CARBON 100 5% 1/4W
R99		1-249-405-11	s	CARBON 100 5% 1/4W
R100		1-249-492-11	s	CARBON 47K 5% 1/2W
R101		1-249-492-11	s	CARBON 47K 5% 1/2W
RV1		1-237-035-11	s	RES, ADJ, METAL 5K
RV2		1-237-033-11	s	RES, ADJ, METAL 1K
RV3		1-237-039-11	s	RES, ADJ, METAL 100K
RV4		1-237-039-11	s	RES, ADJ, METAL 100K
RV5		1-237-038-11	s	RES, ADJ, METAL 50K
RV6		1-237-041-11	s	RES, ADJ, METAL 500K
RV7		1-241-379-11	s	RES, ADJ, METAL 1M
SG1		1-519-030-00	s	DISCHARGE ELEMENT
SG2		1-519-030-00	s	DISCHARGE ELEMENT
SG3		1-519-030-00	s	DISCHARGE ELEMENT
SG4		1-519-030-00	s	DISCHARGE ELEMENT

VF-43 BOARD

Ref. No. or Q'ty		Part No.	SP	Description
1pc		A-7515-267-A	o	MOUNTED CIRCUIT BOARD, VF-43 (PD-491)
1pc		7-682-545-04	s	SCREW +B 3X4
C201		1-163-263-11	s	CERAMIC 330PF 5% 50V
C202		1-124-898-11	s	ELECT 4700uF 20% 16V
C204	⚠	1-136-203-11	s	FILM 0.01uF 5% 630V
C206			s	FILM 10uF 100V
C207			s	FILM 10uF 100V
C208		1-130-785-11	s	FILM 0.47uF 5% 100V
C209		1-124-931-11	s	ELECT 47uF 20% 100V
C210		1-136-189-00	s	FILM 0.1uF 5% 250V
C211		1-137-242-11	s	FILM 0.022uF 10% 1kV
C212		1-136-189-00	s	FILM 0.1uF 5% 250V
CN201		1-506-467-11	o	CONNECTOR, 2P, MALE
CN202		1-506-474-11	o	CONNECTOR, 9P, MALE
CN203		1-506-475-11	o	CONNECTOR, 10P, MALE
CN204		1-506-163-00	s	PLUG
D201		8-719-911-19	s	DIODE 1SS119
D202		8-719-906-62	s	DIODE HZ6A2
D203		8-719-800-76	s	DIODE 1SS226
D204		8-719-971-20	s	DIODE V19G
D205		8-719-901-19	s	DIODE V11N
D206		8-719-901-19	s	DIODE V11N
D207		8-719-901-83	s	DIODE 1SS83
D208		8-719-901-83	s	DIODE 1SS83
IC201		8-759-906-53	s	IC TL062CPS
L201		1-424-570-11	s	COIL 1mH
Q201		8-729-821-47	s	TRANSISTOR 2SC3392-AY7
Q202		8-729-100-66	s	TRANSISTOR 2SC1623
Q203		8-729-216-22	s	TRANSISTOR 2SA1162
Q204		8-729-906-93	s	TRANSISTOR IRF640
Q205		8-729-177-22	s	TRANSISTOR 2SB772-Q
Q206		8-729-100-66	s	TRANSISTOR 2SC1623
Q207		8-729-100-66	s	TRANSISTOR 2SC1623
Q208		8-729-216-22	s	TRANSISTOR 2SA1162
R217		1-249-393-11	s	CARBON 10 5% 1/4W
R218		1-247-739-11	s	CARBON 100 5% 1/2W
R223		1-249-441-11	s	CARBON 100K 5% 1/4W
R224		1-249-385-11	s	CARBON 2.2 5% 1/4W
RV201		1-237-040-11	s	RES, ADJ, METAL 200K

VF-44 BOARD

Ref. No. or Q'ty		Part No.	SP	Description
1pc		1-637-499-11	o	PRINTED CIRCUIT BOARD, VF-44
R216		1-214-945-00	s	METAL 2.2M 1% 1/2W
T201	⚠	1-439-510-11	s	TRANSFORMER ASSY, FLYBACK

Please see pages D-5 and D-6 for the part numbers of capacitors and resistors that are not listed in the parts list.

VF-45 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-268-A	o	MOUNTED CIRCUIT BOARD, VF-45 (PD-493)
C408	1-130-489-00	s	FILM 0.033uF 5% 50V
C409	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 50V
C410	1-162-812-11	s	CERAMIC 0.33uF 10% 50V
C414	1-163-245-11	s	CERAMIC 56PF 5% 50V
C417	1-163-235-11	s	CERAMIC 22PF 5% 50V
C420	1-163-235-11	s	CERAMIC 22PF 5% 50V
C424	1-163-227-11	s	CERAMIC 10PF 5% 50V
C425	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V Ser.No.10101 AND HIGHER Ser.No.30051 AND HIGHER Ser.No.40201 AND HIGHER
C426	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V Ser.No.10101 AND HIGHER Ser.No.30051 AND HIGHER Ser.No.40201 AND HIGHER
C427	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V Ser.No.10101 AND HIGHER Ser.No.30051 AND HIGHER Ser.No.40201 AND HIGHER
C428	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V
C429	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V
C430	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V
C436	1-124-120-11	s	ELECT 220uF 20% 16V
CN401	1-506-477-11	o	CONNECTOR, 12P, MALE
CN402	1-506-472-11	o	CONNECTOR, 7P, MALE
CN403	1-506-474-11	o	CONNECTOR, 9P, MALE
CN404	1-506-469-11	o	CONNECTOR, 4P, MALE
D401	8-719-800-76	s	DIODE 1SS226
D402	8-719-800-76	s	DIODE 1SS226
D403	8-719-800-76	s	DIODE 1SS226
D404	8-719-800-76	s	DIODE 1SS226
D405	8-719-800-76	s	DIODE 1SS226
D406	8-719-800-76	s	DIODE 1SS226
D407	8-719-800-76	s	DIODE 1SS226
D408	8-719-104-34	s	DIODE 1S2836
D409	8-719-104-34	s	DIODE 1S2836
D410	8-719-104-34	s	DIODE 1S2836
D411	8-719-104-34	s	DIODE 1S2836
D451	8-719-911-19	s	DIODE 1SS119
D452	8-719-910-25	s	DIODE HZ12B2L
IC401	8-759-008-45	s	IC MC74HC4538F
IC402	8-759-008-45	s	IC MC74HC4538F
IC403	8-759-008-45	s	IC MC74HC4538F
IC404	8-759-008-45	s	IC MC74HC4538F
IC405	8-759-008-45	s	IC MC74HC4538F
IC406	8-759-008-45	s	IC MC74HC4538F
IC407	8-759-008-48	s	IC MC74HC86F
IC408	8-759-008-99	s	IC MC14042BF
IC409	8-759-925-78	s	IC SN74HC10NS
IC410	8-759-032-01	s	IC MC74HC00AF
IC411	8-759-032-01	s	IC MC74HC00AF
IC412	8-759-708-05	s	IC NJM78L05A
IC413	8-759-008-45	s	IC MC74HC4538AF
IC414	8-759-925-76	s	IC SN74HC08NS Ser.No.10001 THRU 10100 Ser.No.30001 THRU 30050 Ser.No.40001 THRU 40200
IC415	8-759-109-11	s	IC uPD4040BG

(VF-45 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC416	8-759-032-01	s	IC MC74HC00AF
IC417	8-759-925-72	s	IC MC74HC02NS Ser.No.10101 AND HIGHER Ser.No.30051 AND HIGHER Ser.No.40201 AND HIGHER
IC418	8-759-032-23	s	IC MC74HC74AF Ser.No.10101 AND HIGHER Ser.No.30051 AND HIGHER Ser.No.40201 AND HIGHER
IC419	8-759-925-72	s	IC MC74HC02NS Ser.No.10101 AND HIGHER Ser.No.30051 AND HIGHER Ser.No.40201 AND HIGHER
IC420	8-759-032-23	s	IC MC74HC74AF Ser.No.10101 AND HIGHER Ser.No.30051 AND HIGHER Ser.No.40201 AND HIGHER
Q401	8-729-100-66	s	TRANSISTOR 2SC1623
Q402	8-729-100-66	s	TRANSISTOR 2SC1623
Q403	8-729-100-66	s	TRANSISTOR 2SC1623
Q404	8-729-100-66	s	TRANSISTOR 2SC1623
R401	1-249-441-11	s	CARBON 100K 5% 1/4W
R406	1-216-687-11	s	METAL CHIP 33K 0.50% 1/10W
R408	1-216-689-11	s	METAL CHIP 39K 0.50% 1/10W
R409	1-216-681-11	s	METAL CHIP 18K 0.50% 1/10W
R411	1-216-675-11	s	METAL CHIP 10K 0.50% 1/10W
R412	1-216-643-11	s	METAL CHIP 470 0.50% 1/10W
R413	1-216-675-11	s	METAL CHIP 10K 0.50% 1/10W
R414	1-216-667-11	s	METAL CHIP 4.7K 0.50% 1/10W
R416	1-216-681-11	s	METAL CHIP 18K 0.50% 1/10W
R417	1-216-675-11	s	METAL CHIP 10K 0.50% 1/10W
R418	1-216-675-11	s	METAL CHIP 10K 0.50% 1/10W
R419	1-216-675-11	s	METAL CHIP 10K 0.50% 1/10W
R420	1-216-661-11	s	METAL CHIP 2.7K 0.50% 1/10W
R443	1-216-675-11	s	METAL CHIP 10K 0.50% 1/10W
R444	1-216-699-11	s	METAL CHIP 100K 0.50% 1/10W
R445	1-216-679-11	s	METAL CHIP 15K 0.50% 1/10W
R446	1-216-699-11	s	METAL CHIP 100K 0.50% 1/10W
R447	1-216-679-11	s	METAL CHIP 15K 0.50% 1/10W Ser.No.10001 THRU 10100 Ser.No.30001 THRU 30050 Ser.No.40001 THRU 40200
R448	1-216-683-11	s	METAL CHIP 22K 0.50% 1/10W Ser.No.10001 THRU 10100 Ser.No.30001 THRU 30050 Ser.No.40001 THRU 40200
RV401	1-237-037-11	s	RES, ADJ, METAL 20K
RV402	1-237-038-11	s	RES, ADJ, METAL 50K
RV404	1-237-038-11	s	RES, ADJ, METAL 50K
RV405	1-237-039-11	s	RES, ADJ, METAL 100K
RV408	1-237-039-11	s	RES, ADJ, METAL 100K
RV409	1-237-039-11	s	RES, ADJ, METAL 100K
RV410	1-237-038-11	s	RES, ADJ, METAL 50K
RV451	1-237-035-11	s	RES, ADJ, METAL 5K
S401	1-553-977-00	s	SWITCH, SLIDE

Please see pages D-5 and D-6 for the part numbers of capacitors and resistors that are not listed in the parts list.

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
CN1F (to VF-42 board)			
	1-569-195-11	o	HOUSING, 2P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN2F (to VF-42 board)			
	1-569-201-11	o	HOUSING, 8P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN201F (to VF-43 board)			
	1-569-195-11	o	HOUSING, 2P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN202F (to VF-43 board)			
	1-569-202-11	o	HOUSING, 9P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN203F (to VF-43 board)			
	1-569-203-11	o	HOUSING, 10P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN205F (to VF-44 board)			
	1-562-743-11	o	HOUSING, 10P
	1-564-831-11	o	CONTACT, FEMALE, AWG24-30
CN301F (to PS-241 board)			
	1-569-201-11	o	HOUSING, 8P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN302F (to PS-241 board)			
	1-569-199-11	o	HOUSING, 6P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN303F (to PS-241 board)			
	1-569-197-11	o	HOUSING, 4P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN304F (to PS-241 board)			
	1-569-195-11	o	HOUSING, 2P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN305F (to PS-241 board)			
	1-569-197-11	o	HOUSING, 4P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN401F (to VF-45 board)			
	1-569-205-11	o	HOUSING, 12P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN402F (to VF-45 board)			
	1-569-200-11	o	HOUSING, 7P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN403F (to VF-45 board)			
	1-569-202-11	o	HOUSING, 9P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN404F (to VF-45 board)			
	1-569-197-11	o	HOUSING, 4P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN5F (to VF-42 board)			
	1-569-205-11	o	HOUSING, 12P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN501	1-562-381-21	s	CONNECTOR, ROUND TYPE 12P FEMALE
CN502			CRT SOCKET, 7P
CN6F (to VF-42 board)			
	1-569-197-11	o	HOUSING, 4P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
CN7F (to VF-42 board)			
	1-569-202-11	o	HOUSING, 9P
	1-569-194-21	o	CONTACT, FEMALE, AWG24-30
DY501	⚠1-451-377-11	s	DEFLECTION YOKE, W/B (5 INCH)
PL501	1-518-411-00	s	LAMP (WITH CAP) "TALLY"
RV501	1-238-506-11	s	RES, VAR, METAL 5K "CONTRAST"
RV502	1-238-506-11	s	RES, VAR, METAL 5K "PEAKING"
RV503		s	RES, VAR, METAL 50K "BRIGHT"
RV504	1-223-165-00	s	RES, ADJ, WIREWOUND 10K "H CENT"
RV505	1-223-165-00	s	RES, ADJ, WIREWOUND 10K "V CENT"

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
RV506	1-223-165-00	s	RES, ADJ, WIREWOUND 10K "DIMMER"
S501	1-554-924-11	s	SWITCH, TOGGLE "TALLY"
S502	1-554-924-11	s	SWITCH, TOGGLE "MARKER"
S503	1-554-924-11	s	SWITCH, TOGGLE "PEAKING"
V501	⚠1-546-088-11	s	CATHODE-RAY TUBE, B/W (5 INCH)

Please see pages D-5 and D-6 for the part numbers of capacitors and resistors that are not listed in the parts list.

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1	A-7475-132-A	o	SHOE ASSY, FITTING
1	A-7612-405-A	o	SHOE ASSY, V WEDGE
1	A-7612-406-A	o	PLATE ASSY, NUMBER
1	1-574-431-11	s	CABLE ASSY, VF (20-12)
4	7-682-561-09	s	SCREW,+B 4X8
4	7-683-421-04	s	BOLT,HEXAGON SOCKET 4X12
1	7-721-140-60	s	WRENCH, HEX L (3.0)
1	1-532-743-11	s	FUSE, GLASS TUBE

Please see pages D-5 and D-6 for the part numbers of capacitors and resistors that are not listed in the parts list.